Bengaluru Development Authority

T.Chowdaiah Raod, Kumara Park , Bengaluru

Email::eeelec.bda@gmail.com; Telephone No:7411914020

Name of the Tender : Providing LED Street Lights with Centralized Control and Monitoring System (CCMS) for sector 1 to 9 at Dr K Shivarama Karanata Layout, BDA, Bengaluru.

Amount Put to Tender : 5346.29Lakhs

General Details

Tender Inviting Authority	:	Executive Engineer (Elec), Electrical Division , BDA Bengaluru-560020
Procurement Entity	:	Bengaluru Development Authority
Address	:	Executive Engineer (Elec), Electrical Division, Kumara Park west , T. Chowdaiah Road, Bengaluru- 560020.
Telephone No's	:	8317437834
EmailID	:	eeelec.bda@gmail.com

TENDER FOR THE WORK OF

Providing LED Street Lights with Centralized Control and Monitoring System (CCMS) for sector 1 to 9 at Dr K Shivarama Karanata Layout, BDA, Bengaluru

Tender Reference/Bid Enquiry No.	:	**BDA/2025-26/EL/WORK_INDENT129**
Availability of Tender Documents In e-procurement Portal	:	As Detailed in the e-portal
Amount Put To Tender	:	Rs 5346.00Lakhs (Exclusive of GST)
EMD/Bid security	:	Rs 53.46.00 Lakh
Validity of Tender	:	180Days from the Date of Opening of Bids
Completion Period	:	8 months from the date of Work Award the Contract including monsoon period.
Pre–Tender Meeting	:	As Detailed in the e-portal
Venue:	:	Kumara Park west , T. Chowdaiah Road, Bengaluru- 560020.
Last date and Time for seeking clarifications	:	As Detailed in the e-portal
Last Date and Time for submission of Tenders	:	As Detailed in the e-portal
Time and Date of opening of Techno Commercial Bids	:	As Detailed in the e-portal
Online Opening of Techno Commercial Bids in Karnataka Public Procurement Portal.	:	Office of the Executive Engineer (Ele), Electrical Division Kumara Park west , T. Chowdaiah Road, Bengaluru- 560020.
Online Opening of Price Bids in (Financial)	:	As Detailed in the e-portal
Address for Communication Address for Communication	:	Electrical Division Kumara Park west , T. Chowdaiah Road, Bengaluru-

		560020. e-mail: eeelec.bda@gmail.com

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SECTION 1
INVITATION FOR TENDERS(IFT)

SECTION 1

INVITATION FOR TENDERS

(IFT)

1. The **Executive Engineer(Elec.,), Electrical Division,** Kumara Park west , T. Chowdaiah Road, Bengaluru Development Authority, Bengaluru-560020 iinvites tenders behalf of the commissioner from eligible tenderers, for the works detailed in the Table below. The tenderers shall submit tenders for the works given in the Table. *Two Electronic Tender Document System* as per Rule28 of the KTPP Act shall be followed.

   The Tenderers are required to submit the Tender in Two Parts

   (1) Technical Bid containing the Earnest money deposit and the details of their capability to undertake the tender (as detailed in ITT Clause 3 and 6),which will be opened first and

   (2) Financial Bid containing the price tender which will be opened only if the Tenderer is found to be qualified to execute the tendered works both on Electronic Mode Only

   The Tenderers are advised to note the minimum qualification criteria specified in Clause No. 2 & 3 of the Instructions to Tenderers to qualify forward of the contract.

2. The Bids are invited and to be submitted through e-Procurement Platform only. The Bid Notification, Bidding Documents along with Drawings are available on website with hyperlink 'E Procurement https://kppp.karnataka.gov.in. Tender Documents along with drawings and bidding formats are available 'Free of Cost' to bidders. Bidders need to pay Tender Processing Fee and Earnest Money Deposit through any of the 4 modes of e-Payment as mentioned in Clause No.13 of ITT. Bids not accompanied with requisite Tender Processing Fee and Bid security are liable for rejection.

3. Tenders must be accompanied by Earnest Money Deposit specified for the work in the Table below. Earnest Money Deposit will have to be in any one of the forms as specified in the Tender document and shall have to be valid for **45days** beyond the validity of the tender.

4. 4 . Tenders must be electronically submitted Online in e-procurement portal on or before the d

   date and time as mentioned in the e-Procurement platform & Techno-Commercial Bids will

   be opened on/after the date and time mentioned in the tender document/e-procurement

   portal .

5. A Pre-tender meeting will be held on date and time mentioned in the e-procurement portal at the office of the Engineer Member, BDA, Kumara Park west , T. Chowdaiah Road, Bengaluru 560020 to clarify the issues if any, and to answer questions on any matter that may be raised at that stage as stated in ClauseNo.8.2 of 'Instructions to Tenderers' of the tender document.

6. Other details can be seen in the tender documents:

7. The tendering Work name, amount pu**t to tender and EMD Details and stipulated time period for the execution of the work in complete are as fallows:**

Sln.	Name of work	Amount Put To Tender (Rs. in lakhs)	Earnest Money Deposit (Rs. in lakhs)	Tender Processing Fee	Period of completion
1	2	3	4	5	6

	Providing LED Street Lights with Centralized Control and Monitoring System (CCMS) for sector 1 to 9 at Dr K Shivarama Karanata Layout, BDA, Bengaluru.	5346.29	53.46	As specified In e-portal	8 Months

The interested eligible Bidders may obtain further information from the Office of the Executive Engineer,(Ele) Electrical Division, Bengaluru Development Authority, Bengaluru - 560020. e-mail:eeelec.bda@gmail.com

Executive Engineer(Ele),
Electrical Division, BDA

SECTION2: INSTRUCTIONS TO TENDERERS (ITT)

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A . General

1.0 Scope of Tender:

1.1 The Executive Engineer,(Ele) Electrical Division, Bengaluru Development Authority, Bengaluru - 560020. Invites tenders behalf of the commissioner, following the Two Cover tender procedure from eligible Tenderers, for the works (as defined in these documents and referred to as "the works") detailed in the Table given in the Invitation for Tenders (IFT).

1.2 **The salient features of the Scope of work covered under this package shall include, but not limited to, the following:**

The smart street light system for Individual Street light and Group Street light controlling & monitoring. The complete system configuration and control will be achieved remotely through wireless communication. The system enabled with 4G to communicate between switching point controller & Server/Cloud and RF communication (ZigBee RF 2.4 GHz Mesh Topology) / Sub GHz (863 to 869 MHz) between Switching point controller &Street light Control Unit of each street light. Each individual street light communicating to each other over RF communication and forming the strong mesh and all electrical parameters as required transferring to central IOT Gateway over RF Communication. The RF mesh forming in such a way to avoid communication breakage between nodes to nodes hence chance of data losses minimized in this technology as well due to higher data rate, it can be integrated multiple sensors such as Pollution sensor, light sensor, noise sensor and many more in future, with existing control system. The IOT Gateway transfers all data's over the cloud with GPRS communication to user and the user having multiple accesses over each individual parameter inside the software.

All street light should be mapped with Google map with their Geo-coordinates and access its real time status. The basic components are smart street lighting solutions are as : LED Street Light with inbuilt RF Controller , IOT Gateway , GCMS/CCMS & Cloud based Software

1.2.3 SCOPE OF SERVICES:

The scope of services includes Supply, fixing, testing & commissioning of the equipment/system of specified type and rating. The work includes but not limited to:

i. Complete checking, monitoring, storing of the materials at the site and co-ordination of work.
ii. Finalize procedure of Fixing and testing & commissioning in consultation with BDA Officials.
iii. Regular supervision and following up of Fixing and testing & commissioning work.
iv. Testing and commissioning the system/equipments for successful commercial operation.

v. The Equipments & and its accessories shall conform in all respects to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of offer/erection and the owner shall have the power to reject any work or material which in owner's judgment is not in full accordance therewith.

vi. It is not intent to specify completely all the details of Design, equipments and accessories. However, all equipments and accessories shall conform in all respects to the high standard of engineering design and workmanship and shall be capable of performing continuous commercial operation up to the suppliers guarantee period in a manner acceptable to the Owner who will interpret the meanings of drawings and specifications and shall have power to reject any work or material, which in Owner judgment, is not in accordance therewith.

vii. The bidder shall quote for all the items in the complete scope of the work specified in the tender.

NOTE:

The scope shall cover supply of all required equipments, accessories, and tools and plants, competent supervision and consumables. All other matching materials required (whether specifically mentioned or not) for complete installation, testing and commissioning of the system shall also be covered.

2. Eligible Tenderers:

2.1 Tenderers shall not be under a declaration of 'ineligibility for corrupt and fraudulent practices' issued by the Government of Karnataka.

2.2 Tenders are acceptable such that,

i) The Bidder Must Possess a Valid Class-1 and above Electrical Contractors License issued by the Government of Karnataka

ii) All shall meet the Qualifying Requirements and Technical capability prescribed at Clause No. 3.2(a),3.2(b), 3.2(c), 3.3(a) &(b)and 3.6 of Section 2 ITT .

iii) Financial requirement prescribed at clause nos. 3.2 (a), 3.3(b) & 3.6 of ITT

2.3 **Tenders from Joint ventures are not acceptable.**

2.4 General Requirements:

The Bidder should have the following Requirements:

a) Bidder shall be financially sound and shall submit audited financial reports for last five years preceding the date of Bid submission. Bidder shall have adequate knowledge of
LED Lighting fixture and CCMS Automation , shall have infrastructure and fixing and installing facilities and capacity to execute the Works.

b) Litigation: The Tenderer shall provide detailed information on any litigation or arbitration arising out of contracts completed or under execution by it
over the last five years with BDA. A history of awards involving litigations against the bidder may result in rejection of bid.

c) The Tenderer/bidder should not have been Blacklisted/ disqualified for non-performance in any of the Government utilities in the past five years as on date of Bid opening. Then in such cases, the offer of the bidder will be summarily

rejected.

d) The offer of the Tenderer/bidder is liable for rejection in following cases

i. Where the Executive Engineers (Electrical Division) BDA have issued notices in respect of ongoing works in the last 6 months as on date of bid submission invoking 'Risk & Cost' clause and where the work is not completed/charged.

ii. Where the Executive Engineers (Electrical Division) BDA have issued notices in the last 6 months as on date of bid submission invoking 'Risk Cost' clause and where the work is completed by BDA entrusting some other agency

iii. months prior to the last date of bid submission of this tender

Wherein the works awarded by BDA to the Tenderer/bidder has been short closed invoking clause 49.7 & 49.8 of Conditions of Contract (Contractors default) then the bidder shall not be eligible if such short closure has been initiated within 6

Note:

However, if the Tenderer/bidder after issue of 'Risk & Cost' notice completes the works successfully and if the same is commissioned (before opening of the bid), in such cases the offer of the bidder would be considered.

3 Qualification of the Tenderer:

3.1 All Tenderers /Bidders shall provide the requested information accurately and in sufficient detail in Section-3: Qualification Information and shall upload all the documents/credentials meeting the Qualifying Requirements as below:

3.2 To qualify for award of this contract, Tenderer in its name should have **the following:.**

a) Achieved in at least two financial years in the last five years i.e. FY 2020-2021 to 2024-25 a minimum financial turnover usually not less than Two times the amount put to Tender Rs 5346.29 Lakhs (i.e 10692.58 Lakhs)

Note:

i. *Updated to the FY in which the tenders are invited. Financial Turnover of previous years shall be given a weight of 10% per year to bring them to the price level of the FY in which the tenders are invited.

ii. Audited Financial statements ie., Balance sheets, P&L statements, Turnover certificates duly certified by a Chartered Accountant as evidence shall be uploaded of Lead Bidder & Bidder (in case of .).

b) Satisfactorily completed(at least 50% of the contract value), as prime contractor, at least one similar work such as Supply and fixing the Street lights with automation . of value not

less than Rs. 26,73,14,912.00 usually not less than 50% Amount put To Tender)*

c) Executed in any one year, the following minimum quantities of work

Sln	Item Description	Executed Quantity
1	Street Light Fixtures	12579 Nos
2	High Mast	16 Nos
3	CCMS	180Nos

3.3 Each Tenderer should further demonstrate

(a) Availability by owning/Hiring the following key and critical equipment for this work:

Sln	Item Description	Executed Quantity
1	Hydraulic Crane	4Nos
2	Ladder Mounted Jeep Vehicle	9 Nos

(b) liquid assets and /or availability of credit facilities of no less than Rs 1603.88 Lakhs (Credit lines/ letter of credit/ certificates from banks for meeting the fund requirement etc. (usually the equivalent of the estimated cash flow for three months in the peak construction period)*

3.4 Deleted

3.5 Deleted

3.6 Tenderers who meet the above specified minimum qualifying criteria, will only be qualified, if their available tender capacity is more than the total tender value. The available tender capacity will be calculated as under:

Assessed available tender capacity = (A*N*1.5 - B)

Where, (N=8 Months)

A = Maximum value of electrical works executed in any one year during the last five years (updated to FY 2025-2026) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which tenders are invited.

B = Value, at FY 2025-2026 price level, of existing commitments electrical works and on-going works electrical works to be completed during the next 1 Years (12 months) (Period of Completion in Years to be stipulated).

Note:

i. The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Employer in charge, not below the rank of an Executive Engineer or equivalent.

ii. A self-declaration is to be uploaded by the Bidder stating that "the information with regard to assessed available tender capacity (Works on Hand) furnished are correct".

3.7 Even though the Tenderers meet the above criteria, they are subject to be disqualified if they have:

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or - record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion,

litigation history, or financial failures etc.; and/or - participated in the previous Tender for the same work and had quoted unreasonably high tender prices and could not furnish rational justification.

4. One Tender per Tenderer:

4.1 Each tenderer shall submit only one tender for one package. A tenderer who submits or participates in more than one Tender (other than as a sub-contractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the Tenderer's participation to be disqualified.

5. Cost of Tendering:

5.1 The tenderer shall bear all costs associated with the preparation and submission of his tender, and the Employer will in no case be responsible and liable for those costs.

6. Site visit:

6.1 The Tenderer at his own responsibility and risk is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Tender and entering into a contract for construction of the Works. The cost of visiting the Site shall be at the Tenderer's own expense.

B .Tender Documents

7. Content of Tender documents

7.1 The set of tender documents shall have all the Sections given in Page 2:

7.2 Both the sets should be completed and returned with the tender.

8 Clarification on Tender Documents:

i. A Prospective tenderers requiring any clarification of the tender documents, find any discrepancies or omissions in the Specifications and Document or is in doubt as to the true meaning of any Part may notify/ he shall at once

make a request, in writing to the Executive Engineer(Elec)., Electrical Division BDA on or before the date and time as mentioned in the e-Procurement platform for an interpretation/clarification. Interested Bidders may also submit online queries through the e-Procurement platform and need to mention their firm credentials along with online queries. Online queries not supported by firm credentials are liable for **rejection.**
The Owner, then, will issue interpretations and clarifications as he may think fit in writing. After receipt of such interpretations and clarifications the Bidder may submit his Bid but within the time and date as specified in the Invitation for Bid. All such interpretations and clarifications shall form a Part of the Bidding Document and shall accompany the Bidder's Proposal. A prospective Bidder requiring any clarification on Bid Document may notify the Owner in writing. The Owner will respond in writing to any request for such clarifications on the Bidding Document, which, it receives not later than the date indicated in the e- Procurement portal Clarifications/ Amendments/ Corrigendum will be issued through the e-Procurement portal, if found necessary.

Verbal clarifications and information given by the Owner or his Employee(s) or his Representative(s) shall not in any way be binding on the Owner.

8.1 Pre-Tender Meeting:

8.1.1. The tenderer or his authorized representative is invited to attend a Pre-Tender Meeting which will take place at Office of the Engineer Member, BDA, T. Chowdaiah Road, Kumara Park west , Bengaluru, - 560020 (address of venue) on time and date mentioned in the tender document/e- procurement portal.

8.1.2. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

8.1.3. The tenderer is requested to submit any questions in writing or e-mail to reach the Employer.

8.1.4. Minutes of the meeting, including the text of the questions raised (without identifying the source of enquiry) and the responses given will be uploaded in e-procurement platform and the Tenderers are advised to keep updated of the same. Verbal response/discussion shall not be considered. Any modification of the tender documents listed in Sub-Clause 7.1 which may become necessary as a result of the pre-tender meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause 9 and not through the minutes of the pre-tender meeting.

8.1.5. Non-attendance at the pre-tender meeting will not be a cause for disqualification of a tenderer.

9 Amendment of Tender documents:

9.1 At any time prior to the deadline for submission of Bids, the Employer/ Owner may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Document / conditions by issuing addenda/amendment.

9.2 The Amendment/Addendum will be notified in the e-Procurement portal and the same shall be made available against the published tender in the e-Procurement system. Owner will bear no responsibility or liability arising out of non-receipt of the same in time or otherwise.

9.3 To give prospective Tenderers reasonable time in which to take an addendum/Amendment into account in preparing their tenders, the Employer may at its discretion extend the deadline for submission of

tenders, in accordance with Sub-Clause 16.2 below.

9.4 Such Amendments, Addendum, Clarifications etc. shall be binding on Bidders and will be given due consideration by the Bidders while they submit their Bids and invariably upload such Documents as a part of the Bid.

C.Preparation of Tenders

10 Documents comprising the Tender:

10.1 The tender submitted by the Tenderer on e-procurement Portal shall be in electronic document system and shall contain the documents as follows:

10.1.1. First Electronic Document (Technical Bid) :

a. The Bidder shall complete the online Bid Form through e-procurement Portal, Technical Data Requirements sheets etc. provided in the Bidding Documents.
b. The Bidder shall also submit Documentary evidence to establish that the Bidder meets the Qualification Requirements as detailed in Clause 2.0 & 3.0 of Section 2 ITT above.
c. The Tender Processing Fee and Bid Security/EMD shall be in accordance with Clause
13.0 of Section ITT.
d. All other relevant documents specified in the tender documents.

10.1.2. Second Electronic Document (Item wise Financial Bid) **:** Shall be filled in e- procurement portal Only.

10.2 Deleted

10.3 The Bidder shall quote for the entire scope of the proposal covering all aspects of the contract specified under the accompanying Technical Specifications.

10.4 Bids not covering the Total Scope of Works may be treated as incomplete and hence rejected summarily.

10.5 No deviation whatsoever, either in full or in part, the conditions of the bidding documents as specified in the special conditions of contract are permitted by the Owner. Therefore, the Bidders are advised that while making bid proposals and quoting price, these conditions may appropriately be taken into consideration. Bidders are required to upload a certificate in this regard as per the format provided in special conditions of contract in sealed envelope along with other documents.

10.6 The Bidder shall complete all the Schedules & Annexure in the Bid Proposal Sheets, Technical Data Sheets, Financial Bid offer and specified elsewhere. The Qualifying Data shall be filled in the required Schedule of Techno-Commercial sheets. While furnishing Qualifying Data, only the list of executed Works, similar in nature to the tendered Scope of Work, shall be furnished.

10.7 Language of Bid & Measurement:

The Bid prepared by the Bidder and all correspondence and Documents relating to the Bid, exchanged by the Bidder and the Owner, shall be written in the English Language only,
provided that any Printed Literature furnished by the Bidder may be written in another language so long as accompanied by an authenticated English translation of its pertinent passages. Failure to comply with this may disqualify a Bid. For purposes of interpretation of the Bid, the English translation shall govern. The Metric System of measurement shall be used

exclusively in the Contract.

11 Tender Prices/ Bid Price:

11.1 The contract shall be for the whole works as described in Sub-Clause 1.1, based on the Item-wise Financial Bid submitted in e-procurement portal by the Tenderer.

11.2 The Tenderer shall fill in rates in Item-wise Financial Bid in e-Procurement Portal, Items for which no rate or price is entered by the Tenderer will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Item-wise Financial Bid.

11.3 All duties, taxes, and other levies payable by the contractor under the contract, or for any other cause, shall be included in the rates, prices and total Tender Price submitted by the Tenderer. (Excluding GST: The Unit rate of the items provided in the e-portal are exclusive of GST)

11.4 The rates and prices quoted by the Tenderer shall be subject to adjustment during the performance of the Contract in accordance with the provisions of Clause of the Conditions of Contract.

11.5 Taxes and Duties:

Unit Rate/Prices are inclusive of all Taxes but excluding GST ; The Quoted rates of the contractor shall be the Unit Rates inclusive of all Taxes but excluding GST. **(***The Unit rate of the items provided in the e-portal are exclusive of GST)**

12 Tender validity:

12.1 Tenders shall remain valid for a period not less than **One Hundred and Eighty days (180 Days)** after the deadline date for tender submission specified in Clause 16 of ITT. A tender valid for a shorter period shall be rejected by the Employer as summarily non-responsive.

12.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the Tenderers may extend the period of validity for a specified additional period. The request and the Tenderers' responses shall be made in writing or e-mail. In such an event the Bid Security provided under Clause 13.0 shall also be extended by the same period as the extension in the validity of the Bid. A Tenderer may refuse the request without becoming liable for forfeiture of his Bid Security (Earnest Money Deposit). A Tenderer agreeing to the request will not be required or permitted to modify his tender.

13 Bid Security (Earnest Money Deposit):

13.1 The Tenderer shall furnish, as part of his tender, Earnest Money Deposit in the amount as shown in column 4 of the Table of IFT for this particular work. Bids shall be accompanied by Bid Security (EMD) for **53.46 Lakhs** as follows;

I. 1) Upto **Rs.10.00Lakh**

The following modes of payment will be provided as a part of e-Payment services.

- Credit Card/Debit Card
- Net Banking
- NEFT/RTGS
- Over-the-Counter (OTC)
- IMPS

For further details regarding mode of e-payment of EMD in e-procurement platform, please contact e-procurement cell, Government of Karnataka.

2) Balance **Rs 46.46 Lakhs** in the form of Bank Guarantee as per Annexure-II Section-4 of the Bid Document issued either by a Nationalized/Scheduled Bank covering 45 days after the Validity Period of the Bid including Period of Extension, if any required by the Owner. The Bidder shall scan the Bank Guarantee towards EMD and upload the same in the prescribed format in the slot specified for "EMD and Tender Fee Payments" in the e-procurement portal to enable the owner for verification of EMD BG at the time of opening of Techno Commercial Bid, failing which the offer will be rejected. Also, the Bidder shall ensure that the Bank Guarantee towards EMD shall be sent in original to the Executive Engineer, Elec., (Electrical Division), BDA, Bengaluru, so as to reach within the last date & time of submission of Bids, in a sealed cover, failing which their bid shall be rejected..

13.2 Instruments having fixed validity issued as Earnest Money Deposit for the tender shall be valid for 45 days beyond the validity of the tender.

13.3 Any tender not accompanied by an acceptable Earnest Money Deposit and not secured as indicated in Sub-Clauses 13.1 & 13.2 above shall be rejected by the Employer as non- responsive.

13.4 The Earnest Money Deposit of unsuccessful Tenderers will be returned within thirty (30) days of the end of Tender validity period specified in sub clause no. 12.1

13.5 The Earnest Money Deposit of the successful Tenderer will be discharged when the Tenderer has signed the Agreement and furnished the required Performance Security. No interest shall be payable by the Owner on the above Bid Security.

13.6 The Earnest Money Deposit may be forfeited, besides Blacklisting the firm for a period at the discretion of the Employer:

a) If the Tenderer withdraws/modifies the Tender after tender opening during the period of tender validity;
b) If the Tenderer does not accept the correction of the Tender Price, pursuant to Clause 24; or
c) In the case of a successful Tenderer, if the Tenderer fails within the specified time limit to
    i) Sign the Agreement; or
    ii) Furnish the required Security deposit (Contract Performance Guarantee).

13.7 The Bid Security is required to protect the Owner against the risk of Bidder's conduct including withdrawing the bid after acceptance for any reason whatsoever, which would warrant the Guarantee forfeiture, pursuant to Clause No: 13.6. The Bid Security shall be made payable to the Owner without any condition whatsoever.

13.8 In case the Bid is submitted by a ., the Bid Security shall be in the name of Bidder in case of Individual Participation or Lead Bidder in case of ..

14 Format and Signing of Tender:

14.1 Format of Bid:

a) The Tenders are invited through e-Procurement platform only. However hard copy of Bank Guarantee towards Bid Security (EMD) shall be submitted as per clause 13.1.

b) The BG (if any) are to be sealed in a cover and sent to Executive Engineer (Elec)., (Electrical Division), BDA, Bengaluru, so as to reach after last submission date & on or before the date and time of opening of technical bid as indicated in the e- procurement platform.

c) All the documents shall also be uploaded in the appropriate schedules of technical sheets along with scanned copy of Bank Guarantee towards EMD. The Bidder shall also scan the Bank Guarantee towards EMD and upload the same in the prescribed format in the slot specified for "EMD and Tender Fee Payments" in the e-procurement portal to enable the owner for verification of EMD BG at the time of opening of Technical Bid.

d) The Tender shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the Tenderer, in which case such corrections shall be initialed by the person signing the Tender.

D. Submission of Tenders

15 Sealing and Marking of Tenders:

15.1 The Bidder/Tenderer shall submit the Bid Electronically in e-procurement portal before the bid submission date and time published. However, the hard copy of the Bank Guarantee for EMD (if any) shall be submitted in a separate envelope and also the same shall be scanned and uploaded in e-procurement portal failing which their Bid will not be opened.

Note:

a. The Bid Enquiry No. shall be clearly and legibly indicated in the Bank Guarantee.
b. The Bid Enquiry number shall be super scribed on the Sealed envelope.

15.2 The sealed cover shall

a) be addressed to the following address: Executive Engineer, Electrical Division, BDA, Bengaluru,
Bengaluru Development Authority.
(address of office for Tender submission), and
b) bear the following identification:

Tender for: Providing LED Street Lights with Centralized Control and Monitoring System (CCMS) for sector 1 to 9 at Dr K Shivarama Karanata Layout, BDA Bengaluru.

. Tender Reference No. –BDA/2025-26/EL/WORK_INDENT129

- DO NOT OPEN BEFORE XX/XX/XXXX- XX:XX hrs [time and date for tender opening as notified in Notification/e-Procurement Portal, as per Clause 19].

15.3 In addition to the identification required in Sub-Clause 15.2, the inner envelopes shall indicate the name and address of the Tenderer to enable the tender to be returned unopened in case it is declared late, pursuant to

Clause 17.

15.4 If the envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the Tender.

16 Deadline for submission of the Tenders:

16.1 Bid shall be uploaded to the e-procurement portal on or before the last date and time for submission of Bids indicated in Notification/e-procurement portal, failing which bidders cannot submit their bids as the e-Procurement system automatically locks the tender.
Failure in uploading the documents in time, due to any reasons is not attributable to BDA.

16.2 The Employer may at his discretion, extend the deadline for submission of tenders by issuing an amendment in accordance with Clause 9, in which case all rights and obligations of the Employer and the Tenderers previously subject to the original deadline will then be subject to the new deadline.

17 Late Tenders:

17.1 Failure in uploading the documents in time, due to any reasons is not attributable to BDA.

18 Modification and Withdrawal of Tenders:

18.1 Deleted.

18.2 Deleted.

18.3 No tender may be modified after the deadline for submission of Tenders.

18.4 Withdrawal or modification of a Tender between the deadline for submission of Tenders and the expiration of the original period of Tender validity specified in Clause 12.1 above or as extended pursuant to Clause 12.2 may result in the forfeiture of the Earnest Money Deposit besides Blacklisting the firm for a period at the discretion of the Employer pursuant to Clause 13.

18.5 Deleted.

E. Tender Opening and Evaluation

19 Opening of Technical Bid (First Cover) of all Tenders and evaluation to determine qualified Tenderers:

19.1 The Technical Bids will be opened on/after the Date and Time for opening of Tenders stipulated or in case any extension has been given thereto, on the extended Tender opening Date and Time notified in the e-procurement portal. The verification of payment of Tender Processing Fee and EMD will be carried out by the Owner in e-procurement portal. No Electronic Recording/ Transmitting Devices will be permitted during Bid opening.

19.2 Deleted.

19.3 Deleted.

19.4 Deleted.

19.5 Deleted.

19.6 The Employer will evaluate to ascertain the Technical Responsiveness of the Bid for the complete Scope of the Proposal, as covered under these Specifications and Documents and determine whether each tender

(a) meets the eligibility criteria defined in ITT Clause 2;

(b) is accompanied by the required Earnest Money Deposit as per stipulations in ITT

Clause 13 and
(c) meets the minimum qualification criteria stipulated in ITT Clause 3.

The Employer will draw out a list of qualified Tenderers.

19.7 The Bids are liable to be treated as Non-Responsive if the Offers do not comply with the following:

1. Qualifying Requirements of the Bidder shall be as per Clause 2.0 and 3.0 of ITT.
2. Financial Capability of the Bidder shall be as per Clause 3.0 of ITT.
3. Bid Security/EMD shall have been paid as per Clause 13 of Instruction to Tenderers-ITT.
4. Completion Period shall be as specified in the Bid.
5. Bid shall be submitted for the entire Scope of Package.
6. Bid containing Certificate for Acceptance to Important Conditions as per Clause No. 12 of Special Conditions of Contract- SCC.

20 Opening of Item Wise Financial Bid of qualified Tenderers and Evaluation:

20.1 The Price Bids of those Bidders whose Technical Bids are found Responsive will be opened after completion of Technical Evaluation.

NOTE: Price Bids of Technically Non - Responsive Bidders will not be opened.

20.2 Deleted.
20.3 Deleted.
20.4 Deleted.

21 Process to be confidential:

21.1 Information relating to the examination, clarification, evaluation, and comparison of Tenders and recommendations for the award of a contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced. Any effort by a Tenderer to influence the Employer's processing of Tenders or award decisions may result in the rejection of his Tender.

22 Clarification of Tenders:

22.1 To assist in the examination, evaluation, and comparison of Tenders, the Employer may, at his discretion, ask any Tenderer for clarification on already uploaded documents of their Tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by e-mail, but no change in the price or substance of the Tender shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Tenders in accordance with Clause 24 of ITT.

22.2 Subject to sub-clause 22.1, no Tenderer shall contact the Employer on any matter relating to its Tender from the time of the Tender opening to the time the contract is awarded. If the Tenderer wishes to bring additional information to the notice of the Employer, it should do so in writing.

22.3 Any effort by the Tenderer to influence the Employer in the Employer's Tender evaluation, Tender comparison or contract award decisions may result in the rejection of the Tenderers' Tender.

23 Examination of Tenders and determination of responsiveness:

23.1 Prior to the detailed evaluation of Tenders, the Employer will determine

whether each Tender;

a) has been properly signed; and;

b) is substantially responsive to the requirements of the Tender documents.

c) is complete, whether any computational errors have been made, whether required Sureties have been furnished, whether the Documents have been properly signed, and whether the Bids are generally in Order.

23.2 A substantially responsive Tender is one which conforms to all the terms, conditions, and specifications of the Tender documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Tender documents, the Employer's rights or the Tenderer's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Tenderers presenting substantially responsive Tenders.

23.3 If a Tender is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

24 Correction of errors:

24.1 Tenders determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:

a) Deleted

b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.

24.2 The amount stated in the Tender will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the Tenderer, shall be considered as binding upon the Tenderer. If the Tenderer does not accept the corrected amount the Tender will be rejected, and the earnest money deposit may be forfeited besides Blacklisting the firm for a period at the discretion of the Employer in accordance with Sub-Clause 13.6 (b).

24.3 The Bidder should ensure that the Prices furnished in various Price Schedules are consistent with each other. In case of any inconsistency in the Prices furnished in the specified Price Schedules to be identified in Bid Form, the Owner shall be entitled to consider the lowest Price for the purpose of evaluation and for the purpose of Award of Contract use the lowest of the Prices in these Schedules.

Items for which no rate/price/quantity is entered i.e, left blank or quoted as zero by the Bidder, in such cases no payment will be made to the Bidder by the Owner when executed and shall be deemed to have been covered in other items rates and prices in the Contract. Bidder has to execute all such items at free of cost.

25 Evaluation and comparison of Tenders:

25.1 The Employer will evaluate and compare only the Tenders determined to be substantially responsive in accordance with Clause 23.

25.2 In evaluating the Tenders, the Employer will determine for each Tender the evaluated Tender Price by adjusting the Tender Price as follows:

a) making any correction for errors pursuant to Clause 24; and

b) Deleted

25.3 The Employer reserves the right to accept or reject any variation, deviation, or

alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the Tender documents or otherwise result in unsolicited benefits for the Employer shall not be taken into account in Tender evaluation.

25.4 The estimated effect of the price adjustment conditions under Clause 41 of the Conditions of Contract, during the implementation of the Contract, will not be taken into account in tender Evaluation.

25.5 If the tender of the successful tenderer is seriously unbalanced in relation to the Employer's estimate of the cost of the work to be performed under the contract, the Employer `may require the Tenderer to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After Evaluation of the price Analysis, the Employer may require that the amount of the performance Security set forth in clause 29 of ITT be increased at the expense of the Successful Tenderer to a level sufficient to protect the Employer against financial loss in the event of default of the Successful Tenderer under the Contract.

F. Award of Contract

26 Award criteria:

26.1 Subject to Clause 27 of ITT, the Employer will award the Contract to the Tenderer whose Tender has been determined to be substantially responsive to the Tender documents and who has offered the lowest evaluated Tender Price, provided that such Tenderer has been determined to be

(a) eligible in accordance with the provisions of Clause 2 and Clause 3 of ITT, and

(b) qualified to perform the contract satisfactorily in accordance with the provisions of Clause 3 of ITT. The Owner shall be the sole judge in this regard.

27 Employer's right to accept any Tender and to reject any or all Tenders:

27.1 Notwithstanding Clause No. 26, the Employer reserves the right to accept or reject any Tender, and to cancel the Tender process and reject all Tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the grounds for the Employer's action.

28 Notification of award and signing of Agreement:

28.1 The Tenderer whose Tender has been accepted will be notified of the award by the Employer prior to expiration of the Tender validity period by registered letter. This letter (hereinafter and in the Conditions of Contract called the " **Letter of Acceptance ")** will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

28.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of Security deposit in accordance with the provisions of Clause No. 29.

28.3 Deleted.

28.4 Upon the furnishing by the successful Tenderer of the Performance Security, the Employer will promptly notify the other Tenderers that their Tenders have been unsuccessful and will discharge respective bid

security, pursuant to Clause No.13.4.

29 Security deposit /Contract Performance Guarantee:

29.1 Within 20 days of receipt of the **Letter of Acceptance**, the successful Tenderer shall deliver to the Employer a Security Deposit / Contract Performance Guarantee in the form of Bank Guarantee from a Public Sector Indian Bank/ Scheduled Commercial Bank (in the second schedule of the RBI Act-1934) and the Bank should be covered under jurisdiction of Indian laws in the form attached as Annexure-III (Section 4: Formats of Annexures) in favor of the Owner for an amount equivalent to 5**%** of the Contract price, plus additional security for unbalanced tenders in accordance with Clause 25.5 of ITT and Clause 44 of the CC (Conditions of Contract), as per the format given in Section 5.

29.2 If the Security deposit is provided by the Successful Tenderer in the form of a Bank Guarantee, it shall be issued either by a Nationalized /Scheduled Bank.

29.3 Deleted

29.4 Failure of the successful Tenderer to comply with the requirements of Sub-Clause No. 29.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Earnest Money Deposit, besides Blacklisting the firm for a period at the discretion of the Employer.

29.5 The Performance Guarantee shall cover additionally the following Guarantees to the Owner:

a) The Successful Bidder Guarantees the Successful and Satisfactory Operation of the Equipment in the Scope of the Contract, as per the Specifications and Documents;

b) The Successful Bidder further Guarantees that the Equipment provided by him/his sub-Vendors shall be free from all defects in Design, Material and Workmanship and shall upon written Notice from the Owner, fully remedy free of expenses to the Owner, such defects as developed under the normal use of the said Equipment within the period of Guarantee specified in the relevant Clause of the tender documents.

29.6 The Contract Performance Guarantee is intended to Secure the Performance of the entire Contract. However, it shall not to be construed as limiting the “Damages” under Clause entitled "Equipment Performance Guarantee" in Technical Specifications and “Damages” stipulated in other Clauses in the Bid Documents.

29.7 The Contract Performance Guarantee amount shall be unconditional and irrevocable and the amount therein shall be payable to the Owner on demand without any condition whatsoever.

29.8 The cost of complying with the requirements of this Clause shall be borne by the Contractor. The security shall be furnished valid initially till three months after the expiry of the guarantee Period and shall be extended appropriately as guarantee period is extended in accordance with Clause No.10 of SCC & Contract Data Clause-5.

Further the performance security 5% over Contract price covers the items detailed in Clause No.10 of SCC & Contract Data Clause-5, shall be released after the expiry of the guarantee period provided the performance of the equipments found satisfactory.

29.9 The form of the Performance Security shall be as provided in Section:4-Annexure. In the event of any change in the Contract Price, the Performance Security shall be adjusted provided that such adjustment shall be subject to the approval of the Owner. The Performance Security shall be paid to the Owner on first demand without conditions or proof.

29.10 The Performance Guarantee will be discharged without any interest at the end

of Guarantee Period.

30 Advance Payment and Security:

30.1 The Employer will provide an advance payment on the contract price as stipulated in the Conditions of Contract, subject to the maximum amount as stated in the Contract Data.

31.0 Corrupt or Fraudulent practices:

31.1 The BDA requires that the Tenderers/Suppliers/Contractors, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, GOK/BDA:

a) Will reject a proposal for award if it determines that the Tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

b) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a BDA contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a BDA contract.

31.2 Furthermore, Tenderers shall be aware of the provision stated in sub-clause 50.2 of the Conditions of Contract.

SECTION 3 : QUALIFICATION INFORMATION

SECTION 3 - QUALIFICATION INFORMATION

The information to be filled in by the Tenderer hereunder will be used for purposes of computing Tender capacity as provided for in Clause 3 of the Instructions to Tenderers. This information will not be incorporated in the Contract.

1.1 Constitution or legal status of Tenderer : The Bidder Must Possess a Valid Class-1 and above Electrical Contractors License issued by the Government of Karnataka.

Place of Registration : Attach

Principal place of business : Provide Details

1.2 Total value of works executed and payments received in the last five years (in Rs. Lakhs) of Lead Bidder & Bidder:

2020-21: --------

2021-22: --------

2022-23: --------

2023-24: --------

2024-25: --------

Note : Attach relevant Certificate/s from Chartered Accountant.

1.3 Quantities of work executed during the last 5 years- (cl. no. 3.2 b-i of ITT):

Particulars	Name of Work with description	Name of Employer	Number of stations established	voltage class	Date of issue of Work award	Date of commencement of work	Date of commissioning of work	Details of Performance certificates	Remarks

Note: The documentary proof of fulfilling the qualifying requirements shall be uploaded along with the bid. The bidder shall upload the Work Done Certificates, Performance Certificates issued by end users not below the rank of Executive/ Divisional Engineer along with the bid.

1.4 Information on works for which Tenders have been submitted and works which are yet to be completed as on the date of this Tender of Lead bidder & Bidder:

(A) Existing commitments and on-going works:

Description of work	Place & State	Contract No & Date	Name and Address of Employer	Value of contract Rs. Lakhs	Stipulated period of Completion	Value of works remaining to be completed (Rs.Lakhs) (Attach Certificates from Engineers –in-Charge)	Anticipated date of commissioning
1	2	3	4	5	6	7	8

(B) **Works for which Tenders already submitted:**

Description of work	Place & State	Name and Address of Employer	Estimated value of works (Rs. Lakhs)	Stipulated period of Completion	Date when decision is expected	Remarks if any
1	2	3	4	5	6	7

Note:

i) The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Employer in charge, not below the rank of an Executive Engineer or equivalent.

ii) self-declaration is to be uploaded by the bidder stating that "the information with regard to assessed available tender capacity (Works on Hand) furnished are correct".

1.5 The following items of equipment are considered essential for successfully carrying out the works. The Tenderer should furnish all the information listed below:- **Not Applicable-**

1.6 Reports on the financial standing of the tenderer such as profit and loss statements and auditor's reports for the last five years; Audited Financial statements ie., Balance sheets, P&L statements, Turnover certificates duly certified by a Chartered Accountant as evidence shall be uploaded.

1.7 Qualification and experience of the key technical and management personnel in permanent employment with the tenderer and those that are proposed to be deployed on this contract, if awarded.

1.8 Name, address, telephone number & e-mail id of the Tenderers' bankers who may provide references if contacted by the Employer.

1.9 Evidence of access to financial resources to meet the qualification requirement specified in ITT Clause 3.3 (b): Cash in hand, Letter of Credit etc.. List them below and attach certificate from the Banker in the suggested format as under:

BANKER'S CERTIFICATE

This is to certify that M/s. ..... is a reputed company with a good financial standing. If the contract for this work, namely ..... (name of the work) is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of Rs. ..... to meet the working capital requirements for executing the above contract

Sd/-

Name of the Bank, Senior Bank Manger

Address:.....

1.10 Deleted

1.11 Information on Litigations in which the Tenderer is involved:

Other Party (ies)	Employer	Details of dispute	Amount involved	Remarks showing present status

1.12 The proposed methodology and program of construction, backed with equipment planning and deployment, duly supported with broad calculations and quality control procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestones – Detailed in section-6 of the Contract Data

SECTION 4:
FORMATS OF ANNEXURES

ANNEXURES: CONTENTS

1. Form of Tender
2. Proforma of Bank Guarantee for EMD (Bid Security)
3. Proforma of Bank Guarantee for Contract Performance
4. Proforma of Agreement.
5. Power of Attorney
6. Proforma of Line of Credit letter
7. Proforma of Letter of Acceptance
8. Issue of Notice to proceed with the Work
9. Proforma of Indemnity Bond (For Contractor supplied Equipment/ Materials).

ANNEXURE – I

Form of Tender

Description of the Work : **…… Detailed Scope of work:** …… Tender reference/Bid Enquiry No. **……**

To :

The Executive Engineer,
Electrical Division, T. Chowdaiah Road, Kumara Park west , ,
Bengaluru- 560020.
Sir/Madam,

We offer to execute the works described above in accordance with the Conditions of Contract accompanying this Tender with the Contract Price quoted in Item-wise Financial Offer in e- procurement portal.

This Tender and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any Tender you receive.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

We hereby confirm that this Tender complies with the Tender validity and Earnest Money Deposit required by the Tender documents.

We attach herewith our current income-tax clearance certificate. Yours faithfully,
Authorized Signature:

Name & Title of Signatory: _____

Name of Tenderer _____

Address:----------

GSTIN:

ANNEXURE – II

PROFORMA OF BANK GUARANTEE FOR EMD/BID SECURITY

(To be stamped in accordance with stamp Act)

The non-Judicial stamp paper should be in the name of issuing Bank.

Ref……. Bank Guarantee No…..

Date ……

To

Dear Sirs,

In accordance with Invitation to Bid under your Specification No…….M/s……. having its Registered/ Head Office at .....(hereinafter called the Bidder) wish to participate in the said Bid or……and you, as a special favour, have agreed to accept an irrevocable and unconditional Bank Guarantee for an amount of Rs…….Valid up to .....on behalf of Bidder in lieu of the Bid deposit required to be made by the Bidder, as a Condition precedent for participation in the said Bid.

We, the……Bank at ……. having our Head Office at .....(local address) Guarantee and undertake to pay immediately on demand by Bengaluru Development Authority the amount of…… (in words & figures) merely on **demand and** without any reservation, protest, demur and recourse. Any such demand made by said `Owner' shall be conclusive and binding on us irrespective of any dispute or difference raised by the Bidder.

This Guarantee shall be irrevocable and shall remain valid up to and including ****** If any further extension of this Guarantee is required, the same shall be extended to such required period (not exceeding one year) on receiving instructions from M/s……on whose behalf this Guarantee is issued.

In witness whereof the Bank, through its authorised Officer, has set its hand and stamp on this ……day of……20 …….at…….

WITNESS:

…… . ……

(Signature) (Signature)

…… ……

(Name) (Name)

…… ……

(Official Address) (Designation with Bank Stamp)

Attorney as per
Power of Attorney
No
Date .....

(******) This date shall be Forty Five (45) days after the last date for which the Bid is valid.

ANNEXURE- III

PROFORMA OF BANK GUARANTEE
FOR SECURITY DEPOSIT/CONTRACT
PERFORMANCE

(To be stamped in accordance with stamp Act)

Ref.…… Bank Guarantee No ……

Date ……

To,

Dear Sirs,

In consideration of the Bengaluru Development Authority, (hereinafter referred to as the Owner which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having Awarded to M/s…… with its Registered/Head Office at …… (hereinafter referred to as the 'Contractor' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract by issue of Owner's Letter of Intent to Award the Contract No……..dated……..and the same having been unequivocally accepted by the Contractor, resulting in a Contract bearing No……. dated valued at……for ……..(Scope of Contract) and the Contractor having agreed to provide a Contract Performance Guarantee for the faithful Performance of the entire Contract equivalent to **5% (Five Percent)** of the Contract price, plus additional security for unbalanced tenders in accordance with Clause 25.5 of ITT and Clause 43 of the CC (Conditions of Contract).

We …… (Name & Address) having its Head Office at ……(hereinafter referred to as the 'Bank' which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby Guarantee and undertake to pay, the Owner, merely on demand any and all monies payable by the Contractor to the extent of ……as aforesaid at any time up to ……**…… (days/Month/year) without any demur, reservation, contest, recourse or protest and/or without any reference to the Contractor.

Any such demand made by the Owner on the Bank shall be conclusive and binding notwithstanding any difference between the Owner and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other Authority. The Bank undertakes not to revoke this Guarantee during its currency without previous consent of the Owner and further agrees that the Guarantee herein

contained shall continue to be enforceable till the Owner discharges this Guarantee.

The Owner shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee, from time to time to extend the time for Performance of the Contract by the Contractor. The Owner shall have the fullest liberty, without affecting this Guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner,

and either to enforce or to forebear to enforce any covenants, contained or implied, in the Contract between the Owner and the Contractor or any other course or remedy or security available to the Owner. The Bank shall not be released to its obligations under these presents by any exercise by the Owner of its liberty with reference to the matters aforesaid or any of them or by reason of any other act of omission or Commission on the part of the Owner or any other indulgences shown by the Owner or by any other matter or thing whatsoever which under law would, but for this provision have the effect of relieving the Bank.

The Bank also agrees that the Owner at its option shall be entitled to enforce this Guarantee against the Bank as a Principal Debtor, in the first instance, without proceeding against the Contractor and notwithstanding any Security or other Guarantee the Owner may have in relation to the Contractor's liabilities.

Notwithstanding anything contained herein above our liability under this Guarantee is restricted to Rs.....and it shall remain in force up to and including .....and shall be extended from time to time for such period (not exceeding one year), as may be desired by M/s on whose behalf this Guarantee has been given.

Dated this .....day of .....20.....at .....

WITNESS:

.....	.....
(Signature)	(Signature)
.....	.....
(Name)	(Name)
.....	.....
(Official Address)	(Designation with Bank Stamp)

Attorney as per Power of Attorney No ..... Date .....

NOTE:

** The date will be ninety (90) days after the end of Guarantee Period as specified in the Contract.

1. The stamp papers of appropriate values shall be purchased in the name of issuing Bank.

ANNEXURE- IV

PROFORMA OF "CONTRACT AGREEMENT"

This Agreement made on this ..... between Bengaluru Development Authority having its Office at Kumara Parka West, T Chowdaiah Road, Guttahalli, Bengaluru-560020, India (hereinafter referred to as a "Owner" or BDA which expression shall include its administrators,) on the one part and the . of ..... as a lead bidder and ..... as a bidder (hereinafter called "the Contractor") of the other part.....

1) WHEREAS Bengaluru Development authority is desirous of Providing LED Street Lights with Centralized Control and Monitoring System (CCMS) for sector 1 to 9 at Dr K Shivarama Karanata Layout, BDA, Bengaluru , as per its Bid indent No Indent No - BDA/2025-26/EL/WORK_INDENT129 AND WHEREAS ..... Contractor/Agency had participated in the above referred Bidding referred t o a s ... ... therein, which has been accepted by ..... resulting into a "Contract".

NOW THEREFORE THE DEED WITNESSETH AS UNDER:

1.0 Article

1.1 Award of Contract:

BDA has Awarded the Contract to the successful bidder M/s..... for the Work of Providing LED Street Lights with Centralized Control and Monitoring System (CCMS) for sector 1 to 9 at Dr K Shivarama Karanata Layout, BDA, Bengaluru, on the Terms and Conditions contained in its Letter of Intent to Award the Contract No ..... dated ..... at the tender premium of ....., the contract price amounting to Rs ..... Excluding GST and inclusive of other applicable taxes and the Documents referred to therein. The Award has taken effect from the date of aforesaid Letter of Intent to Award the Contract. The terms and expressions used in this Agreement shall have the same meaning as are assigned to them in the "Contract Document" referred to in the succeeding Article.

2.0 Contract Documents:

2.1 The Contract shall be performed strictly as per the Terms and Conditions stipulated herein and in the following Documents attached herewith (hereinafter referred to as "Contract Document").

i) BDA's Bidding Documents in respect of I n d e n t N o ..... consisting of Tender documents and subsequent Amendments (Corrigendum & Addendum) issued, entitled as ..(Part-I)

ii) BDA's Technical Specification including Amendments issued in related I n d e n t ..... entitled as ..(Part-II)

iii)The Proposals and bindings such as Proposal Sheets, Data Requirement Sheets, Payment Terms, Works Schedules, Power of Attorney, ... entitled as ...(Part-III)

iv) BDA 's Letter of Intent to Award the Contract No ..... for a Contract Price of Rs ..... (Exclusive of GST but inclusive of all other applicable taxes) duly accepted by ..... entitled as ..(Part-IV)

v) Quality Plans for Manufacturing and Field activities as per the . agreement and other documents entitled as 'Quality Plan" entitled as. (Part-V)

vi) Contract Activity Chart.. entitled as (Part-VI)

vii) Qualifying Documents submitted by the contractor and Proceedings of the Tender Evaluation Committee entitled as (Part-VII)

All the aforesaid Contract Documents shall form an integral part of this Agreement, in so far as the same or any part conforms to the Bidding Document (Part-I & II) and what has been specifically agreed to by the Owner in his Letter of Intent to Award the Contract. Any matter inconsistent therewith, contrary or repugnant thereto or any deviations taken by the Contractor in its 'Proposal (Part-III) but not agreed to specifically by the Owner stands withdrawn by the Contractor. For the sake of brevity, this Agreement along with its aforesaid Contract Documents shall be referred to as the 'Agreement".

3.0 Conditions & Covenants:

The scope of Work shall also include The smart street light system for Individual Street light and Group Street light controlling & monitoring. The complete system configuration and control will be achieved remotely through wireless communication. The system enabled with 4G to communicate between switching point controller & Server/Cloud and RF communication (ZigBee RF 2.4 GHz Mesh Topology) / Sub GHz (863 to 869 MHz) between Switching point controller &Street light Control Unit of each street light. Each individual street light communicating to each other over RF communication and forming the strong mesh and all electrical parameters as required transferring to central IOT Gateway over RF Communication. The RF mesh forming in such a way to avoid communication breakage between nodes to nodes hence chance of data losses minimized in this technology as well due to higher data rate, it can be integrated multiple sensors such as Pollution sensor, light sensor, noise sensor and many more in future, with existing control system. The IOT Gateway transfers all data’s over the cloud with GPRS communication to user and the user having multiple accesses over each individual parameter inside the software.

All street light should be mapped with Google map with their Geo-coordinates and access its real time status. The basic components are smart street lighting solutions are as : LED Street Light with inbuilt RF Controller , IOT Gateway , GCMS/CCMS & Cloud based Software including the integration to SCADA System of all such items, which are not specifical1y mentioned in the Contract Documents, but which are needed for successful, efficient, safe & reliable Operation of the Equipment unless otherwise specifically excluded in the Specifications under ‘exclusions' or Letter of Intent to Award the Contract, including successfully carrying out the operation and maintain ace for the 5 years from the date of work completion handing over to BDA/BBMP as per the instruction of Engineer incharge duly observing all prevailing standards and norms.

3.1 Time Schedule, Miles Stone Achievement & PV Clause applicability:

Time is the essence of the Contract, The Time Schedules shall be strictly adhered to and by ..... shall perform the Work in accordance with the agreed Schedule as given in Miles stone chart. The Contractor is wholly obliged to and fully aware of the miles stone achievement.

3.2 Quality Plans:

3.2.1 The Contractor is responsible for the proper execution of the BDA approved Quality Plans. The Work beyond the Customer's hold points will progress only with the Owner's consent. The Owner will also undertake Quality surveillance and Quality audit of the Contractor's/Sub-Contractor's Works, systems and procedures and Quality Control activities. The Contractor further agrees, that

any change in the Quality Plan will be made only with the Owner's approval. The Contractor shall also perform all Quality activities, inspection and Tests agreed with the Owner as per Standard Operating Procedures issued to demonstrate full compliance with the Contract requirements.

3.2.2 The Contractor shall arrange necessary facilities including transportation to all Joint inspection by the PMC Staff & BDA Officials to attend Quality audit and Quality surveillance of Contractor's Quality systems and manufacturing activities. For all the materials intended to utilize shall be finalized & Approved by the BDA Vendor list, inspection report duly witnessing mandatory tests at factory/production premises is the must. Further the Contractor also agrees to provide the Owner with the necessary facilities. These shall include but not limited to the following:

i) Relevant Plant Standards, Drawing and Procedures.

ii) Detailed Quality Assurance System/ Manuals for Manufacturing activities.

iii) Complete set of Log Sheets mentioned in the Quality Plan.

3.2.3 It is expressly agreed to by the Contractor that the Quality Tests and inspection by the Owner shall not in any way relieve the Contractor of its responsibilities for Quality Standards and Performance Guarantee and their other obligations under the agreement.

3.2.4 ..... agrees to submit required documents for review & approval by the BDA prior to the procurement activities initiated. Later in the subsequent stages quality Assurance Documents package to be submitted to BDA for review and record after Completion and within 1 week of dispatch of Material. The Package will include the following:

i) Factory Test result/ inspection report for Testing required by this Contract or applicable Codes and Standards.

ii) Two copies of inspection report duly, signed by Quality Assurance Personnel of both BDA and ..... for the agreed Customer hold points.

iii) Report of the rectification Works where and if applicable.

3.3 It is expressly agreed to by the Contractor that the Contract is on single source responsibility basis and the Contractor is bound to perform the total Contract in its entirety and non-Performance of any part or portion of the Contract shall be deemed to be a breach of the entire Contract.

3.4 The Contractor Guarantees that the Equipment under the Contract shall meet the ratings and Performance Parameters as stipulated in the Technical Specifications (Part- II) and in the event of any deficiencies found in the requisite Performance figures, the Owner may at its option reject the Equipment or alternatively accept it on the Terms and Conditions and subject to levy of the Penalties in terms of Contract Documents. The amount of penalties so leviable shall be in accordance with the contract document and the total penalty levied shall not exceed the total contract value.

3.5 It is further agreed to by the Contractor that the Contract Performance Guarantee shall in no way be construed to limit or restrict the Owner's right to recover the Damages/ Compensation due to short fall in the Equipment Performance figures as stated in Para 3.6 above or under any other Clause of the agreement. The amount of Damages/ Compensation shall be recoverable either by way of deduction from the Contract Price, Contract Performance Guarantee, RA Bills and/or otherwise.

3.6 The Contract Performance Guarantee furnished by the Contractor is irrevocable and un-conditional and the Owner shall have the powers to invoke it not withstanding any dispute or difference between the Owner and the Contractor pending before any Court, Tribunal, Arbitrator or any other Authority.

3.7 This agreement constitutes full and complete understanding between the Parties. It shall supersede all prior correspondence. Any modification of the Agreement shall be effected only by a written instrument signed by the authorized Representatives of both the Parties.

4.0 Settlement of disputes:

4.1 It is specifically agreed by and between the Parties that all the differences or disputes arising out of the Agreement or touching the subject matter of the Agreement, shall be referred and settled under the Arbitration Center - Karnataka (Domestic & International) Rules, 2012.

4.2 Notice of Default:

Notice of default given by either Party to the other Party under the Agreement shall be in writing and shall be deemed to have been duly and properly served upon the Parties hereto duly addressed to the signatories at the addresses mentioned herein above.

5.0 Joint/Several Responsibility: (Applicable in case of .)

The Contractor and the . member are severally bound themselves to BDA for the faithful performance of the contract.

IN WITNESS WHEREOF, the Parties themselves/through their duly authorized Representatives have caused this agreement to be executed on_____ at Bengaluru.

The Common Seal of Bengaluru Development Authority was hereunto affixed in the presence of: The Witnesses Signed, Sealed and Delivered by the said Commissioner, Bengaluru Development Authority, Bengaluru, in the presence of Witnesses

Witness:

1.....

2.....

Commissioner
Bengaluru Development Authority
Bengaluru

Witness:

1.....

2.....

1) Contractor

ANNEXURE- V

POWER OF ATTORNEY

(On Non-Judicial Stamp Paper of Value Rs. 500/-)

KNOW ALL MEN BY THESE PRESENTS that we .....

.....a Company incorporated under the laws of .....and having its Registered Office/Head Office at ..... (hereinafter called "Manufacturer / Bidder" which expression shall unless repugnant to the Context or meaning thereof, include its successors, administrators and assigns) acting through Mr.....its constitute, nominate and appoint M/s.....a Company incorporated under the laws of ..... and having its Registered/ Head Office at .....as its duly constituted lawful Attorney (hereinafter called "Attorney" or "Authorized Representative") to exercise all or any of the powers for and on behalf of the 'Manufacturer / Bidder in regard to Specification No .....
Package
.....the Bids for which have been invited by .....(Address "Owner") to
undertake the following acts:

i) To submit proposal and participate in the aforesaid Bid Specification of the "Owner" on behalf of the "Manufacturer / Bidder".
ii) To negotiate with the "Owner" the Terms and Conditions including Price for Award of the Contract pursuant to the aforesaid Bid and to sign the Contract with the "Owner' for and on behalf of the Manufacturer / Bidder.
iii) To receive accept and execute the Contract for and on behalf of the "Manufacturer / Bidder".
iv) To do any other act or submit any Document related to the above.

It is expressly understood that the Power of Attorney shall remain valid, binding and irrevocable till submission of the Contract Performance Guarantee in terms of the Contract. The "Manufacturer / Bidder" hereby agrees and undertakes to satisfy and confirm all whatsoever the said "Attorney"/"Authorized Representative" quotes in the Bid, negotiates and signs the Contract with the "Owner" and/or purports to act on behalf of the "Manufacturer / Bidder" by virtue of this Power of Attorney and the same shall bind the "Manufacturer / Bidder" as if done by itself.

IN WITNESS WHEREOF THE "Manufacturer/ Bidder" has executed these Presents at
.....on this day Of.....
..... under the Common Seal of the Manufacturer / Bidder company.

Specimen Signature of Attorney Holder
.....
(Name)

For and on behalf of
Common Seal of the above Manufacturer / Bidder Has been affixed thereunto, in the presence of.
WITNESSES:
1. Signature .....
Name.. .....
Designation ....
Occupation .....

ANNEXURE - VI

Format of BANKER'S CERTIFICATE/Line of Credit Letter (To be issued in letter head of Bank Branch)

Reference
Number(Sl.No.) Place:
Date:
To
[Name and Address of the beneficiary]

This is to certify that Mr./ M/s.....[name of the customer] having his/ their registered/ administrative office at ..... is a customer of our Bank and is/ are engaged in .....[nature of activity]. If the said customer is allotted/awarded with ..... (Brief details of works), we may extend credit facilities upto Rs.....Lakh, to meet his/their working capital requirements towards execution of the said work order as per the Loan Policy of the Bank.

This certificate is valid upto three months from the date of issue, that is up to dd/mm/yy.

Yours
Faithfully
Sd/-
Branch Manger
Name of the
Bank
Address:.....
.....

ANNEXURE - VII

Letter of Acceptance (letterhead paper of the Employer)

_____[date]
To: _____[name and address of the Contractor]

Dear Sirs, This is to notify you that your Tender dated _____ for execution of the

_____
[name of the contract and identification number, as given in the Instructions to Tenderers] for the Contract Price of Rupees —— _____ (_____) [amount in words and figures], as corrected and modified in accordance with the Instructions to Tenderers is hereby accepted by our Agency. You are hereby requested to furnish Security deposit plus additional security for unbalanced tenders in terms of Clause 25.5 of ITT, in the form detailed in Clause 29.1 of ITT for an amount of Rs.——————— within 20 days of the receipt of this letter of acceptance valid up to 30 days from the date of expiry of Defects Liability Period i.e. up to ..... and sign the contract, failing which action as stated in Para 29.4 of ITT will be taken.
Yours faithfully,
Authorized Signature
Name and Title of Signatory
Name of Agency

ANNEXURE - VIII

Issue of Notice to proceed with the work

(letterhead of the Employer)

———— (date) To ———————————— (name and address of the Contractor) ———————————— ———————————— Dear Sirs: Pursuant to your furnishing the requisite security deposit as stipulated in ITT Clause 29.1 and signing of the contract agreement for the construction of ———— 27a Tender Price of Rs.————, you are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully,
(Signature, name and title of signatory authorized to sign on behalf of Employer)

ANNEXURE-IX

PROFORMA OF INDEMNITY BOND TO BE EXECUTED BY THE CONTRACTOR FOR THE EQUIPMENT/MATERIALS BROUGHT INTO THE SITE BY THE CONTRACTOR AND KEPT IN HIS POSSESSION FOR PERFORMANCE OF THE CONTRACT

(For Contractor supplied Equipment's / Materials)

INDEMNITY BOND

THIS INDEMNITY BOND is made this……day of ……20 by ……a Company registered under the Companies Act, 1956/Partnership Firm/Proprietary concern having its Registered Office at ……(hereinafter called as 'Contractor' or 'Obligator' which expression shall include its successors and permitted assigns) in favour of Bengaluru Development Authority, ……having its Project at ……. (hereinafter called as "BDA" which expression shall include its successors and assigns):

WHEREAS Owner has Awarded to the Contractor a Contract for ……vide his Letter of Intent to Award the Contract/Contract No ……dated ……and its Amendment No . ……. (applicable when Amendments have been issued) for execution of the Contract.

And Whereas by virtue of Clause No ……of the said Contract, the Contractor is required to execute an Indemnity Bond in favor of BDA for the Equipment's/Materials supplied by the Contractor and used for the purpose of Erection in due Performance of the Contract for which BDA makes Payments in Installments and the Title is transferred to BDA only after taking over of the Commissioned Work by BDA (hereinafter called the "Contractor Supplied Equipment").

NOW THEREFORE, this indemnity bond witnessed as follows:

1 That in consideration of various Equipment's/Materials which is valued at

Rs…… (Rupees ……) as mentioned in the Contract to be brought into the Site by the Contractor and to be used by him from time to time for the purpose of Performance of the Contract, for which the Payments will be made by BDA in Installments as per the Payment Terms of the Contract, the Contractor hereby undertakes to indemnify and shall keep BDA indemnified, for the full value of such Equipment's/Materials. The Contractor hereby acknowledges receipt of the initial Installment of Payments towards the Equipment's/materials brought into the Site by him as per the details in the Schedule appended hereto. Further, the Contractor agrees to acknowledge receipt of the initial Installments of Payments towards subsequent Installments of Equipment's/Materials to be brought into the Site by him as required by BDA in the form of Schedules consecutively numbered, which shall be attached to this Indemnity Bond so as to form integral parts of this Bond. It is expressly understood by the Contractor that issuance of a Certificate by the Engineer and the Contractor for the purpose of receiving initial Payments by the Contractor to the effect that the Equipment's/Materials are received at the Site shall be

construed as keeping the Equipment's/Materials belonging to BDA in the possession of the Contractor and the Contractor shall hold such Equipment's/Materials in trust as a Trustee for and on behalf of BDA.

2. That the Contractor is obliged and shall remain absolutely responsible for the safe transit / protection and custody of the Equipment at BDA Project Site against all risks whatsoever till the Equipment are duly used / erected in accordance with the terms of the Contract and the Plant / Package duly erected and commissioned in accordance with the terms of the Contract and is taken over by BDA. The Contractor undertakes to keep BDA harmless against any loss or Damage that may be caused to the Equipment

3. The Contractor undertakes that the Equipment shall be used exclusively for the Performance / execution of the Contract strictly in accordance with its Terms and Conditions and no parts of the Equipment shall be utilized for any other Work or purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnity Bond by the Contractor shall interiliac constitute a criminal breach of trust on the part of the Contractor for all intents and purpose including legal / penal consequences.

4. That BDA shall have the right over the Equipment's/Materials (even if Part Payment is made and the Title not transferred), free from all encumbrances, charges or lien of any kind, whatsoever. The Equipment shall at all times be open to inspection and checking by Engineer-in-Charge- / Engineer or other Employees / Agents authorized by him in this regard. Further, BDA shall always be free at all times to take possession of the Equipment in whatever form the Equipment may be, if in its opinion, the Equipment are likely to be endangered, miss-utilized or converted to uses other than those specified in the Contract, by any acts of omission or Commission on the part of the Contractor or any other Persons or on account of any mason whatsoever and the Contractor binds himself and undertakes to comply with the directions of demand of BDA to return the Equipment without any demur or reservation.

6. That this Indemnity Bond is irrevocable. If at any time any loss or Damage occurs to the Equipment or the same or any part thereof is miss-utilized in any manner whatsoever, then the Contractor hereby agrees that the decision of the Engineer-in-Charge/ Engineer of BDA as to assessment of loss or Damage to the Equipment shall be final and binding on the

Contractor. The Contractor binds himself and undertakes to replace the lost / or Damaged Equipment at his own Cost and / or shall pay the amount of loss to BDA " without any demur, reservation or protest. This is without prejudice or any other right to remedy that may be available to BDA against the Contractor under the Contract and under this Indemnity Bond.

6. NOW THE CONDITION of this Bond is that if the Contractor shall duly and punctually comply with the Terms and Conditions of this Bond to the satisfaction of BDA, then the above bond shall be void, but otherwise, it shall remain in full force and virtue.

IN WITNESS WHEREOF, the Contractor has hereunto set his hand through his authorized Representative under the common seal of the Company, the day, Month and year first above mentioned.

SCHEDULE NO. 1

Sl. No	Particulars of the Equipments/ Materials Brought into the Site by the Contractor and kept in his possession on behalf of BDA	Quantity	Value of the Equipment/ Material (Rs.)	Certificate No./Date Recorded by the Engineer/ Contractor for making Initial Payment	Initial Installment Amount Paid by BDA (Rs.)	Signature of Power Of Attorney Holder of the Contractor.

(Please number subsequent Schedules)

For and on
behalf of M/s
.....

I i. Signature..... Signature .....

ii. Name ..... Name.....

iii. Address ..... Address .....
Authorised Representative

2. i. Signature.....
(Common Seal)

ii. Name.....(In Case of Company)

iii. Address

* Indemnity Bonds are to be executed by the authorized Persons and (i) in case of Contracting Company under common seal of the Company or (ii) having the Power of Attorney issued under common seal of the Company with authority to execute Indemnity Bonds, (iii) In case of (ii), the original Power of Attorney if it is specifically for this Contract or Photostat copy of the Power of Attorney if it is General Power of Attorney and such Documents should be attached to Indemnity Bond.

SECTION 5
CONDITIONS OF CONTRACT

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SECTION 5 - CONDITIONS OF CONTRACT

A. General

1. Definitions:

1.1 Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meanings. Bold letters are used to identify defined terms.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Tender.

Compensation events are those defined in Clause No. 38 hereunder.

The Completion Date is the date of completion of the Works as certified by the Employer in accordance with Sub Clause 46.1

Commissioning for Electrical Equipment shall mean Charging the Transmission Line/Station, Transmission Line and Station (as defined in scope of work) at Rated Voltage after Completion of Erection, Testing and Completion of Pre-Commissioning checks.

The Contract is the contract between the Employer and the Contractor to execute, complete and maintain the Works. It consists of the documents listed in Clause 2.2 below.

The Contract Data defines the documents and other information which comprise the Contract. The Contractor is a person or corporate body whose Tender to carry out the Works has been accepted by the Employer.

The Contractor's Tender is the completed Tender document submitted by the Contractor to the Employer.

The Contract price is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; months are calendar months.

Month shall mean the Calendar Month. 'Day' or 'Days' unless herein otherwise expressly defined shall mean Calendar Day or Days of 24 Hours each.

'**A Week'** shall mean continuous period of Seven (7) Days.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The **Defects liability/Guarantee period** is the period named in the Contract Data and calculated from the Commissioning Date which shall mean the period during which the Contractor shall remain liable for Repair or Replacement of any defective Part of the Works performed under the Contract.

The **Employer /Owner** is the party who will employ the Contractor to carry out the Works and shall mean BDA, the Bengaluru Development Authority (BDA) and shall include their Legal Representatives, Successors and Assigns.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The Initial Contract price is the Contract Price listed in the Employer's Letter of Acceptance.

The Intended Completion Date is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Employer by issuing an extension of time. Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

Plant is any integral part of the Works which is to have a mechanical, electrical, electronic or chemical or biological function.

'Site' shall mean and include the Land and other places on, into or through which the Works and the related facilities are to be Erected or Installed and any adjacent Land, Paths, Street or Reservoir which may be allocated or used by the Owner or Contractor in the Performance of the Contract.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Employer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the works. It does not necessarily coincide with any of the Site Possession Dates.

A **Variation** is an instruction given by the Employer which varies the Works.

Bidder/Tenderer shall mean Prime bidder or Lead bidder or Contractor or Bidder as the case may be.

'Consulting Engineer' shall mean any Firm or Persons duly appointed as such from time to time by the Owner.

'Works' shall mean and include supplying of Equipment/Material in the Scope of the Contractor and extending all Services, as per the Specifications and Complete Erection, Testing and Putting into Satisfactory Operation (including Owner Supplied Equipment's/ Materials) including all Transportation, Handling, Unloading and Storage at the Site as defined in the Contract.

The Works are what the Contract requires the Contractor to construct, install, Commission and turn over to the Employer, as defined in the Contract Data.

'Inspector' shall mean the Owner or any Persons nominated by the Owner from time to time, to inspect the Equipment, Stores or Works under the Contract and/or the duly Authorized Representative of the Owner.

Letter of Acceptance shall mean the Official Notice issued by the Owner notifying the Contractor that his Bid has been accepted.

'**Date of Contract'** shall mean the date of Agreement

‘Writing' shall include any Manuscript, Type Written, Computer Generated or Printed Statement, under or over Signature and/or Seal, as the case may be.

When the words **'Approved', Subject to Approval', Satisfactory', 'Equal to', 'Proper', 'Requested', 'As Directed', Where Directed', ‘When Directed', 'Determined by, 'Accepted', 'Permitted'**, or Words and Phrases of like importance are used, the Approval, Judgment, Direction etc is understood to be a function of the **Owner/Engineer.**

‘Test on Completion’ shall mean such Tests as prescribed in the Contract to be performed by the Contractor before the Work is taken over by the Owner.

'Start up' shall mean the time period required to bring the Equipment covered under the Contract from an Inactive Condition, when construction is essentially complete, to the state ready for Trial Operation. The Start Up Period shall include preliminary Inspection and Checkout of Equipment and Supporting Sub-System, Initial Operation of the Complete Equipment covered under the Contract to obtain necessary Pre-Trial Operation Data, perform Calibration and Corrective action, Shut Down, Inspection and adjustment prior to the Trial Operation period.

'Initial Operation' shall mean the first Integral Operation of the Complete Equipment covered under the Contract (Including Owner Supplied) with the Sub-System and Supporting Equipment in Service or available for Service.

‘**Trial Operation**', **'Reliability Test', ‘Trial Run', ‘Completion Test',** shall mean the extended Period of Time after the Start up period. During this Trial Operation Period, the Unit shall be Operated over the Full Load Range. The length of Trial Operation shall be as determined by the Engineer, unless otherwise specified elsewhere in the Contract.

'Performance and Guarantee Test 'shall mean all Operational checks and Tests required to determine and demonstrate Capacity, Efficiency, and Operating Characteristics as specified in the Contract Documents.

The term **'Final Acceptance/Taking Over'** shall mean the Owner's written acceptance of the Works performed under the Contract, after successful Commissioning/Completion of Performance and Guarantee Tests, as specified in the accompanying Technical Specification or other-wise agreed in the Contract.

'Guarantee Period'/'Maintenance Period' shall mean the period during which the Contractor shall remain liable for Repair or Replacement of any defective Part of the Works performed under the Contract.

'Latent Defects' shall mean such defects caused by faulty Design, Material or Workmanship which cannot be detected during Inspection, testing etc. based on the Technology available for carrying out such Tests.

'Drawing', 'Plans' shall mean all:

a) Drawings furnished by the Owner/ Consultant as a basis for Bid/ Proposals.
b) Supplementary Drawings furnished by the Owner/ Consultant to clarify and to define in greater detail the intent of the Contract.

c) Drawings submitted by the Contractor with his Bid, provided such Drawings are acceptable to the Owner/ Consultant.

d) Drawings furnished by the Owner/ Consultant to the Contractor during the progress of the Work; and

e) Engineering Data and Drawings submitted by the Contractor during the progress of the Work provided such Drawings are acceptable to the Owner/Consultant.

'Codes' shall mean the following, but not limited to, including the latest Amendments, and/or Replacements if any:

a. Indian Electricity Act, 2003 for further codes and Rules and Regulations made there under.
b. Indian Factory Act, 1948, and Rules and Regulations made thereunder.
c. Indian Explosive Act, 1884, and Rules and Regulations made thereunder.
d. Indian Petroleum Act, 1934, and Rules and Regulations made there under.
e. A.S.M.E. Test Codes.
f. A.I.E.E. Test Codes.
g. American Society of Materials Testing Codes.
h. Standards of the Indian Standards Institution.
i. Other Internationally Approved Standards and/or Rules and Regulations touching the subject Matter of the Contract.

Words imparting the **Singular only** shall also include the **Plural** and vice-versa where the Context so requires.

Words imparting '**Persons'** shall include Firms, Companies, Corporation and Associations or Bodies of individuals, whether incorporated or not.

"Tests on Completion": Means the Tests that are prescribed in the Bidding Documents to be made before Materials are accepted by the Owner.

"Destination": Means the Location where the Goods are specified to be delivered and where they will be accepted by the Owner.

Engineer shall mean the Officer appointed in writing by the Owner to act as Engineer from time to time for the purposes of the Contract.

Engineer means The Executive Engineer, Ele, Electrical Division, BDA, in whose Jurisdiction these Works are involved.

'Engineer's Representative: Mean,

1) Assistant Executive Engineers, Elecl., Electrical Sub Division BDA.
2) Assistant Engineers, Elecl., Electrical Sub Division BDA

The Term '**Services'** means Services Ancillary to the Supply of Goods such as Port Clearance, Transportation and Insurance and any other Incidental Services, such as Civil, Structural and Architectural Works, Erection, Testing and Commissioning and other such obligation of the Contractor covered under the Contract.

'All Equipment and **Materials'** to be supplied shall also mean 'Goods'.

'Constructed' shall also mean 'Erected and Installed'.

"**Contract Agreement"** means the document recording the terms of the Contract between the Owner and the Contractor.

"**Government"** means the Government of India / Government of Karnataka.

'Corrupt practice' means the offering, giving receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

'Fraudulent practice' means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Tenderers (prior to or after Tender submission) designed to establish Tender prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition.

2. Interpretation:

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Employer will provide instructions clarifying queries about the Conditions of Contract.

2.2 The documents forming the Contract shall be interpreted in the following order of priority::

1) Detailed Work Award
2) Agreement
3) Letter of acceptance to Award the Contract, notice to proceed with the works
4) Contractor's Tender and the Documents attached thereto including the Letters of Clarifications thereto between the Contractor and the Owner prior to the Award of Contract except to the extent of repugnancy
5) Contract Data
6) Invitations for Tender, Instructions to Tenderers, Conditions of Contract, Special Conditions of Contract, Contractors Bid Proposal Sheets
7) Specifications of the Equipment/ Material to be furnished and Erected under the Contract as brought out in the accompanying Technical Specifications and Data Requirement Sheets.
8) Drawings
9) Bill of Quantities, Literature, Data and Information of any sort given by the Contractor along with his Bid, subject to the approval of the Owner
10) Any other document listed in the Contract as forming part of the Contract.

2.2.2 In the event of any conflict between the above mentioned Documents, the matter shall be referred to the Engineer in charge whose decision shall be considered as final and binding upon the Parties.

2.2.3 the relevant Information/Material furnished by the Contractor such as Specifications of Material/Equipment, Design, Literature, Drawings or any other Data during the course of Contract will become the Property of the Owner and Owner will have full rights to use the same elsewhere.

2.3 **Use of Contract Documents and Information:**

2.3.1 The Contractor shall not, without the Owner's prior written consent, disclose the Contract, or any provision thereof, or any Specification, Plan, Drawing, Pattern, Sample or Information furnished by or on behalf of the Owner in connection therewith, to any Persons other than a Person employed by the Contractor in the Performance of the Contract. Disclosure to any such employed Persons shall be made in confidence and shall extend only so far, as may be necessary for purposes of such Performance.

2.3.2 The Contractor shall not, without the Owner's prior written consent, make use of any Document or information enumerated in various Contract Documents except for purpose of performing the Contract.

2.3.3 The Contractor shall not communicate or use in Advertising, Publicity, Sales Releases or in any other Medium, Photographs or other reproduction of the Works under this Contract, or descriptions of the Site, Dimensions, Quantity, Quality or other information, concerning the Works unless prior written permission has been obtained from the Owner.

2.3.4 Any Document, other than the Contract itself, enumerated in various Contract Documents, shall remain the property of the Owner and shall be returned (in all copies) to the Owner on Completion of the Contractor's Performance under the Contract, if so required by the Owner.

2.4 **Standards:**

The Goods supplied under this Contract shall conform to the Standards mentioned in the Technical Specification, and, when no applicable Standard is mentioned, to the authoritative Standard appropriate to the Goods and such Standards shall be the latest issued by the concerned Institution.

3. Law Governing Contract:

3.1 The Law Governing the Contract is the Laws of India supplanted by the Karnataka Local Acts.

The laws applicable to the Contract shall be the laws in force in India. The Courts of Bengaluru shall have exclusive jurisdiction in all matters arising under this Contract.

The Contractor shall comply with the laws of the country of manufacture concerning the manufacture of the Goods and the laws of India where the same is to be supplied/utilized.

3.2 **Enforcement of terms:**

The failure of either Party to enforce at any time any of the provisions of this Contract or any rights in respect thereto or to exercise any option therein provided, shall in no way be construed to be a waiver of such provisions, rights or options or in any way to affect the validity of the Contract. The exercise by either Party of any of its rights herein shall not preclude or prejudice either Party from exercising the same or any other right it may have under the Contract.

4. Employer's Decisions:

4.1 Except where otherwise specifically stated, the Employer will decide contractual matters between the Employer and the Contractor.

5. Delegation:

5.1 The Employer may delegate any of his duties and responsibilities to other people after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6. Communications:

6.1 Communications between parties which are referred to in the conditions are effective only when in writing/e-mail. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

7. Subcontracting: Deleted

8. Other Contractors:

8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer.

9. Personnel:

9.1 The Contractor shall employ the technical personnel (of number and qualifications) as may be stipulated by BDA/GOK from time to time during the execution of the work. The technical staff so employed shall be available at site as may be stipulated by the Employer.

9.2 If the Employer asks the Contractor to remove a person who is a member of the Contractor's staff or his work force stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

10. Employer's and Contractor's Risks:

10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

11. Employer's Risks:

11.1 The Employer is responsible for the excepted risks which are:

a) rebellion, riot commotion or disorder unless solely restricted to employees of the Contractor arising from the conduct of the Works; or

b) a cause due solely to the design of the Works, other than the Contractor's design;
or

c) any operation of the forces of nature (in so far as it occurs on the Site) which an experienced contractor:

i) Could not have reasonably foreseen; or

ii) Could reasonably have foreseen, but against which he could not reasonably have taken at least one of the following measures;

(A) prevent loss or damage to physical property from occurring by taking appropriate measures or

(B) insure against such loss or damage

12. Contractor's Risks:

12.1 All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the

Contractor.

13. Insurance:

13.1 The Contractor shall prior to commencing the works, effect and thereafter maintain insurances, in the joint names of the Employer and the Contractor, (cover from the first working day after the Start Date to the end of Defects Liability Period), in the amounts stated in the Contract Data:

a) For loss of or damage to the Works, Plants and Materials and the Contractor's equipment;

b) For liability of both Parties for loss, damage, death and injury to third parties or their property arising out of the Contractor's performance of the Contract including the Contractor's liability for damage to the Employer's property other than the Works and

c) For liability of both Parties and of any Employer's representative for death and injury to the Contractor's personnel except to the extent that liability arises from the negligence of the Employer, any Employer's representative or their Employees.

13.2 Policies and certificates for insurance shall be delivered by the Contractor to the Employer for his approval before the Start Date. All such insurance shall provide for compensation to be payable to rectify the loss or damage incurred. All payments received from insurers relating to loss or damage shall be held jointly by the Parties and used for the repair of the loss or damage or as compensation for loss or damage that is not to be repaired.

13.3 If the Contractor fails to effect or keep in force any of the insurances referred to in the previous sub-clauses or fails to provide satisfactory evidence, policies or receipts, the Employer may without prejudice to any other right or remedy, effect insurance for the cover relevant to such default and pay the premiums due and recover the same as a deduction from any other monies due to the Contractor. If no payments is due, the payment of the premiums shall be a debt due.

13.4 Alterations to the terms of an insurance shall not be made without the approval of the Employer.

13.5 Both Parties shall comply with any conditions of the insurance policies.

13.6 The Contractor at his Cost shall arrange, secure and maintain all Insurance as may be pertinent to the Works and obligatory in terms of law to protect his interest and interests of the Owner against all perils detailed herein. The form and the limit of such Insurance as defined herein together with the under-writer in each case shall be acceptable to the Owner. However, irrespective of such acceptance, the responsibility to Maintain Adequate Insurance Coverage at all time during the period of Contract shall be of Contractor alone. The Contractor's failure in this regard shall not relieve him of any of his Contractual responsibilities and obligations. The Contractor shall, however, be authorized to deal directly with Insurance Company or Companies and shall be responsible in regard to maintenance of all Insurance covers. Further the Insurance should be in freely convertible Currency.

13.7 Any loss or Damage to the Equipment during handling, transportation, Storage, Erection, putting into Satisfactory Operation and all activities to be performed till the successful Completion of Commissioning of the Equipment shall be to the account of the Contractor. The Contractor shall be responsible for preference of all Claims and make good the Damages or loss by way of repairs and/or replacement of the Equipment, Damaged or lost. The transfer to title shall not in any way relieve the Contractor of the above responsibilities during the period of Contract. The Contractor shall provide the Owner with copies of all Insurance policies and Documents taken out by him in pursuance of the Contract. Such copies of Documents shall be submitted to

the Owner immediately after such Insurance coverage. The Contractor shall also inform the Owner in writing at least sixty (60) Days in advance regarding the expiry/cancellation and/or change in any of such Documents and ensure revalidation, renewal etc. as may be necessary well in time.

13.8 The perils required to be covered under the Insurance shall include, but not be limited to fire and allied risks, miscellaneous accidents (fixing/Erection risks) Workman compensation risks, loss or Damage in transit, theft, pilferage, riot and strikes and malicious Damages, civil commotion, weather conditions, accidents of all kinds, etc. The Scope of such Insurance shall be adequate to cover the Replacement/ Reinstatement Cost of the Equipment for all risks up to and including delivery of Goods and other Costs till the Equipment is delivered at Site. The Insurance policies to be taken should be on replacement value basis and/or incorporating escalation Clause. Notwithstanding the extent of Insurance cover and the amount of Claim available from the underwriters, the Contractor shall be liable to make good the full replacement/ rectification value of all Equipment/Materials and to ensure their availability as per Project requirements.

13.9 All Costs on account of Insurance liabilities covered under the Contract will be on Contactor's account and will be included in Contract Price. However, the Owner may from time to time, during the pendency of the Contract, ask the Contractor in writing to limit the Insurance coverage, risks and in such a case, the Parties to the Contract will agree for a mutual settlement, for reduction in Contract Price to the extent of reduced Premium amount. The Contractor, while arranging the Insurance shall ensure to obtain all discounts on Premium that may be available for higher Volume or for reason of financing arrangement of the Project.

13.10 All the Equipment and Materials being supplied by the Contractor for the package shall be kept completely insured by the Contractor at his Cost from the time of dispatch from their Works, up to the Completion of Fixing/Erection Testing and Commissioning, trail run and executing Operation and Maintenance for the period of Years at Site and handing over to BDA/BBMP in good working condition as decided by the Engineer incharge of the work.

13.11 Further, it will be the responsibility of the Contractor to lodge, pursue and settle all claims (for all the equipment and materials including Owner supplied items) with the Insurance Company and the Owner shall be kept informed about it. The Contractor shall replace the lost/damaged goods promptly irrespective of the settlement of the claims by the underwriters and ensure that the work progress is as per agreed schedules. The losses, if any, in such replacement will have to be borne by the Contractor.

13.12 The Clause entitled 'Insurance' under the Section Fixing/Erection Conditions of Contract-ECC covers the additional Insurance requirements for the portion of the Works to be performed at the Site.

14. Site Investigation Reports:

14.1 The Contractor, in preparing the tender, shall refer site investigation reports referred to in the Contract data, supplemented by any information available to the Tenderer. However,

the bidders are advised to compulsorily carry out the walk over survey/route inspection to familiarize with the work before quoting.

15. Queries about the Contract Data:

15.1 The Employer will clarify queries on the Contract Data.

16. Contractor to Construct the Works:

16.1 The Contractor shall execute the Works in accordance with the Specification and Drawings.

17. The Works to be completed by the Intended Completion Date:

17.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the program submitted by the Contractor, as updated with the approval of the Employer, and complete them by the Intended Commissioning Date. The Start Date of work is the Date of Award of the Contract.

17.2 **WORK SCHEDULE:**

17.2.1 The Time and the Date of Completion of the Contract as stipulated in the Contract by the Owner with or without modifications, if any, and so incorporated in the Letter of Award/Letter of Intent (as applicable), shall be deemed to be the essence of the Contract. The Contractor shall so organize his resources and perform his Work as to complete it not later than the date agreed to.

17.2.2 The Contractor shall submit a detailed **Activity Chart acceptable to the owner so as to achieve the predefined milestones (**The Executive Engineer, Elec., Electrical Division, BDA, in whose Jurisdiction these Works are involved), within the time frame agreed, consisting of adequate number of activities covering various key Phases of the Work such as Design, Drawings, Procurement, Manufacturing, Shipment, Receiving of the Owner Supplied Equipment's (if any), and Field fixing/Erection activities within Seven (7) days of the date of Notice of Award of Contract. The Contractor shall submit the approved Activity Chart to Executive Engineer, Elec., Electrical Division Section within Fifteen (15) days from the date of Letter of Intent to Award the Contract.

This Network shall also indicate the Interface facilities to be provided by the Owner and the dates by which such facilities are needed. The Contractor shall discuss the **Chart** so submitted with the Owner and the agreed **Chart** shall form part of the Contract Documents. During the Performance of the Contract, if in the opinion of the Engineer, proper progress is not maintained, Suitable changes shall be made in the Contractor's Operations to ensure proper progress without any Cost implication to the Owner. The Interface Facilities to be provided by the Owner in accordance with the agreed **Chart** shall also be reviewed while reviewing the progress of the Contract.

NOTE: However, the Owner reserves the right to revise the Activity chart in consultation with the successful Bidder in case of early progress of the work w.r.t the approved Activity chart by the Contractor for early completion of work.

17.2.3 Based on the above-agreed Activity Chart, fortnightly reports shall be submitted by the Contractor as directed by the Engineer.

17.2.4 Subsequent to the, finalization of the Chart, the Contractor shall make available to the Engineer a detailed Manufacturing Program, in line with the agreed Contract Activity Chart. Such Manufacturing Program shall be reviewed, updated and submitted to the Engineer once every two Months thereafter.

17.2.5 The Bidder shall include in this **Work Schedule** his program for furnishing Designs, Testing, Supply of Materials (in his Scope), when the Owner Supplied Equipment's to be provided (if any) and Fixing/Erecting the Equipment's and Commissioning covered in the Bid Documents. The Program shall be in the form of **Activity Chart** identifying Key Phases in various areas of the total Works like procurement of Materials and Bought Out items, Testing, Manufacture, deliveries and Field activities. The **Activity Chart** shall confirm to the following Scheduled Commissioning Period reckoned from the Date of Letter of Award/Letter of Intent (as applicable):

"COMMISSIONING PERIOD IS EIGHT MONTHS (8) FROM THE DATE OF LETTER of AWARD THE CONTRACT INCLUDING MONSOON PERIOD"

While preparing the above mentioned Activity Chart, the Contractor may take guidance from the Tentative Dates of various activities indicated in the Technical Specification. The Owner has no objection to modify the intermittent activities without affecting the Final Completion Schedule. However, all the Schedules shall be approved by the Owner.

This **Activity Chart** will be discussed and agreed to before the Award of Contract. It may be required by the Owner to revise the periods indicated above based on the interface requirements of the Project. Such revisions, if made, will be finalized before the Award of Contract. The provisions of Clauses 41.0 and 49.7 Conditions of Contract-CC regarding **Penalty** leviable for delays shall become effective after the dates mentioned above.

17.2.6 After the Award of the Contract, the Contractor Shall Plan the sequence of Work of Manufacture and Erection to meet the dates stated above and shall ensure that all Work / Manufacture, shop Testing and dispatch of the Equipment and Materials is in accordance with the required Construction / Erection sequence.

17.2.7 The provisions of **Penalty** leviable in case of delay in Completion shall become effective after the periods mentioned above for successful Completion of Testing and Commissioning.

17.2.8 Within one Month of Notification of Award, the Contractor shall submit for review and approval, detailed Network Schedules based on **Activity Chart** (mutually agreed by the Owner and Contractor) to the Engineer showing the logic and duration of activities in the following areas:

a) Detailed Engineering, Procurement (including Bought Out Items and Raw Materials), Manufacture, Shop Inspection, Testing, Dispatch and

Receipt at Site in case of Equipment's/Materials in the Scope of the Contractor.

b) Detailed Erection and Commissioning activities covering the complete Scope of Work.

c) Inputs required from Owner (including handing over of Owner Supplied Equipment's/Materials to the Contractor) for smooth and timely execution of Contract and also major details / information to be submitted by Contractor for further related Engineering to be done by Owner/ Consultant. These are to be identified in the Net Work based on details finalized during pre- Award discussions.

After approval of the Activity Chart, the Contractor shall submit one reproducible of the Activity Chart as well as detailed Network with sufficient Nos. of prints as desired by Owner.

17.2.9 Detailed Erection and Commissioning Program including Pre-Erection activities covering Manpower deployment, Tools and Plants Mobilization etc., shall be submitted by Contractor within suitable time as agreed to during Pre- Award discussions.

17.2.10 Detailed Drawing Schedule based on Programs referred above shall be submitted by the Contractor within 15 days' time from the notification of Award, in the format to be specified by the Owner.

17.2.11 Detailed Cash flow in accordance with Terms of Payment and in line with agreed Work Schedule should be submitted within Thirty (30) days after the Award.

17.2.12 The Contractor shall submit to the Engineer, his manufacturing and Delivery Schedules for all Equipment's, within Thirty days (30 days) from the Notification of Award. Such Schedules shall be in line with the detailed Network for all phases of the Work of the Contract. Such Schedules shall be reviewed, up-dated and submitted to the Engineer by the Contractor, once in every two Months thereafter, only for the purpose of Progress Monitoring. Schedules shall also include the Materials and Equipment purchased from outside Suppliers.

17.2.13 The Contractor shall submit to the Owner/Engineer the detailed Bill of Materials, within **45 days** of the Notification of Award. Additions / deletions to the Bill of Materials, during detailed Engineering will also be incorporated in the Bill of Materials within 2 weeks of the approval of the Drawings, if such approval of Drawings necessitates the change.

17.2.14 Within one week of approval of the **Activity Chart**, the Contractor shall forward to the Engineer copies of the Computer Run Data if it be so required. The type of output and number of copies of each type to be supplied by the Contractor shall be determined by the Engineer.

17.2.15 The **Activity Chart** shall be updated at a frequency mutually agreed upon for the purpose of Monitoring. However, for the purpose of identification of Contractors Contractual liability, the agreed **Activity Chart** referred in Clause 17.2.5 shall only be applicable. Monthly review of the Progress and identification of necessary Corrective actions as may be desired by the Engineer. The Meeting will be attended by the Engineer or his authorized Representatives and such responsible Representatives of the Contractor as may be considered necessary by the Engineer. Such Meeting shall be attended

by the Contractor's Representatives at the Contractor's own Cost. The Contractor shall be responsible for recording the proceeding of the Meeting(s), a report of which shall reach the Owner or the Engineer not later than seven (7) days after the Meeting (s).

17.2.16 Access to the Contractor's and Sub-Vendor's/ Sub - Contractor's Work shall be granted to the Engineer at all reasonable times for the purpose of ascertaining the Progress.

17.2.17 During execution of the Contract / Manufacture/ Erection / Commissioning, the Contractor shall furnish fortnightly Progress Reports to the Engineer in a Format to be specified by the Engineer indicating the Progress up to the Month as against Scheduled and Anticipated Completion Dates in respect of Activities covered in Programs/ Schedules referred above. If called for by the Engineer, the Contractor shall also furnish to the Engineer Resources Data in the specified Format(s), and Time Schedule(s). The Contractor shall also furnish any other information necessary to ascertain Progress, if called for by the Engineer.

17.3 **Effectiveness of Contract:**

The Contract shall be considered as having come into force from the date of the Notification of **Letter of Award** unless otherwise provided in the Notification of Award.

17.4 Completion of Contract:

Unless otherwise terminated under the provisions of any other relevant Clause, this Contract shall be deemed to have been completed on the expiry of the Guarantee Period as provided for under the Clause No: 10.0 of SCC.

18. Approval by the Employer:

18.1 The Contractor shall submit Specification and drawings showing the proposed Works to the Employer, who is to approve them if they comply with the Specifications and Drawings.

18.2 The Contractor shall be responsible for the design of Works

18.3 The Employer’s approval shall not alter the Contractor’s responsibility for design of the
Works.

18.4 The Contractor shall obtain approval of third parties to the design of third parties to the design of the Works where required.

18.5 All Drawings prepared by the Contractor for the execution of the Works, are subject to prior approval by the Employer before their use.

18.6 All Drawings & Annexures appended to this Bidding Document shall form part of the Technical Specification and supplement the requirements specified.

18.7 The Technical Specification shall be read and construed in conjunction with the Drawings and the Annexures to determine the Scope of Work and Terminal points. **The successful Bidder shall not take up manufacturing of any equipment’s/materials and go ahead with the execution of**

works unless the drawings are approved by the BDA In case there is any discrepancies between the specification and approved drawings, the same shall be brought to the notice of the Owner(BDA) within 15 days for the clarification.

18.8 The Quantities shown on Drawings and Annexures are tentative for Bidding purpose only. Any variation arising during detailed Engineering stage will be taken into account for adjustment of Contract Price based on Unit Rates quoted in the Bid.

19. Safety:

19.1 The Contractor shall be responsible for the safety of all activities on the Site.

20. Discoveries:

20.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site is the property of the Employer. The Contractor is to notify the Employer of such discoveries and carry out the Employer's instructions for dealing with them.

21. Possession of the Site:

21.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Contract Data, the Employer is deemed to have delayed the start of the relevant activities and this will be Compensation Event.

22. Access to the Site:

22.1 The Contractor shall allow the Employer and any person authorized by the Employer access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plant are being manufactured/ fabricated/assembled for the works.

23. Instructions:

23.1 The Contractor shall carry out all instructions of the Employer which comply with the applicable laws where the Site is located.

24. Procedure for Resolution of Disputes/ Settlement of disputes:

24.1 If the Contractor is not satisfied with the decision taken by the Employer, the dispute shall be referred by either party to Arbitration within 30 days of the notification of the Employer’s decision.

24.2 If neither party refers the dispute to Arbitration within the above 30 days, the Employer’s
decision will be final and binding.

24.3 The Arbitration shall be conducted in accordance with the arbitration procedure stated in the Special Conditions of Contract.

B. Time Control

25. Program/Activity chart:

25.1 Within the time stated in the Contract Data, the contractor shall submit to the Employer for approval a Program showing the general methods, arrangements, order and timing for all the activities in the works.

25.2 The Employer's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Employer again at any time for approval. A revised Program is to show the effect of Variations and Compensation Events.

25.3 The basic consideration and the essence of the Contract is strict adherence to the Time Schedule in performing the specified Works.

25.4 The Owner's requirements of Completion Schedule for the Works are mentioned in the Clause No: 17.2 of Conditions of Contract.

25.5 The Completion Schedule as stated in Clause No: 17.2 of Conditions of Contract shall be one of the major factors in consideration of the Bids.

25.6 The Employer reserves the right to request for a change in the Work Schedule during Pre Award discussions with successful Bidder.

25.7 The successful Bidder will be required to prepare detailed **Activity Chart** and finalize the same with the Owner as per the requirement of Clause 17.2 of Conditions of Contract.

26. Extension of the Intended completion Date:

26.1 The Employer shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Commissioning to be achieved by the Intended completion Date.

26.2 The Employer shall decide whether and by how much to extend the Intended Commissioning Date within 21 days of the Contractor asking the Employer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information.

27. Delays ordered by the Employer:

27.1 The Employer may instruct the Contractor to delay the start or progress of any activity within the Works.

28. Management Meetings:

28.1 The Employer may require the Contractor to attend a management meeting. The business of a management meeting shall be to review the progress achieved and the plans for remaining work.

28.2 The responsibility of the parties for actions to be taken is to be decided by the Employer either at the management meeting or after the management meeting and stated in writing to be distributed to all who attended the meeting.

C. Quality Control

29. Identifying Defects:

29.1 The Employer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Employer may instruct the Contractor to search for a Defect and to uncover and test any work that the Employer considers may have a Defect.

30. Tests:

30.1 If the Employer instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect the test shall be a Compensation Event.

31. Correction of Defects:

31.1 The Employer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins after successful Commissioning and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

31.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect

within the length of time specified by the Employer's notice.

32. Uncorrected Defects:

32.1 If the Contractor has not corrected a Defect within the time specified in the Employer's notice, the Employer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

D. Cost Control

33. Bill of Quantities (BOQ):

33.1 The BOQ shall contain items for the construction, installation, testing, and commissioning work to be done by the Contractor.

33.2 The BOQ is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate as per terms & conditions of the Contract.

34. Variations:

34.1 The Employer shall have power to order the Contractor to do any or all of the following as considered necessary or advisable during the progress of the work by him

a) Increase or decrease of any item of work included in the Bill of Quantities (BOQ)/ Work Award;
b) Omit any item of work;
c) Change the character or quality or kind of any item of work;
d) Change the levels, lines, positions and dimensions of any part of the work;
e) Execute additional items of work of any kind necessary for the completion of the works; and
f) Change in any specified sequence, methods or timing of construction of any part of the work.

34.2 The Contractor shall be bound to carry out the work in accordance with any instructions in this connection, which may be given to him in writing by the Employer and such alteration shall not vitiate or invalidate the contract.

34.3 Variations shall not be made by the Contractor without an order in writing by the Employer, provided that no order in writing shall be required for increase or decrease in the quantity of an item appearing in the BOQ/Work Award so long as the work executed conforms to the approved drawings/Designs.

34.4 The Contractor shall promptly request in writing to the Employer to confirm verbal orders and the officer issuing oral instructions shall confirm it in writing within **30 days**, failing which the work shall be carried out as though there is no variation. In case variation is approved it shall be accompanied by BOQ, failing which the contractor shall be responsible for deviation if any**.** Further, approval of Competent Authority has to be obtained for the variation as per prevailing norms of BDA.

34.5 No Alterations, Additions, Amendments, Omissions, Suspensions or Variations of the Works (hereinafter referred to as 'Variation') under the Contract as detailed in the Contract Documents, shall be made by the Contractor except as directed in writing by the Engineer, but the Engineer shall have full powers, subject to the provisions hereinafter contained, from time to time, during the execution of the Contract, to issue Notice in writing to instruct the Contractor to make such Variation without prejudice to the Contract. The Contractor shall carry out such Variation and be bound by the same conditions as far as applicable as though the said Variations occurred in the Contract Documents. If any suggested Variations would, in

the opinion of the Contractor, if carried out, prevent him from fulfilling any of his obligations or Guarantees under the Contract, he shall notify the Engineer thereof in writing and the Engineer shall decide forthwith whether or not, the same shall be carried out and if the Engineer confirms his instructions, the Contractor's obligations and Guarantees shall be modified to such an extent as may be

mutually agreed to. Any difference in Cost occasioned by any such variation shall be added to, or reduced from the Contract Price as the case may be.

34.6 In the event of Engineer requiring any Variation, a reasonable and proper Notice shall be given to the Contractor to enable him to Work his arrangement accordingly, and in cases where Goods or Materials are already prepared or any Design, Drawings or Pattern made or Work done requires to be altered, a reasonable and agreed Sum in respect thereof shall be paid to the Contractor.

34.7 In any case in which the Contractor has received instructions from the Engineer as to the requirement of carrying out the Alterations or Additions or Substitute which either then or later on, will, in the opinion of the Contractor, involve a Claim for additional Payment, the Contractor shall immediately and in no case later than thirty (30) days, after receipt of the instructions aforesaid and before carrying out the instructions, advise the Engineer to that effect. But the Engineer shall not become liable for the Payment of any charges in respect of any such Variations, unless the instructions for the Performance of the same shall be confirmed in writing by the Engineer.

34.8 In all the above cases, in the event of a disagreement as to the reasonableness of the said Sum, the decision of the Owner shall prevail.

34.9 Notwithstanding anything stated above in this Clause, the Owner shall have the full power to instruct the Contractor, in writing, during the execution of the Contract to vary the Quantities of the items or groups of items in accordance with the provision of Clause entitled 'Change of Quantity' in clause 35 of Section CC. The Contractor shall carry out such Variations and be bound by the same conditions as though the said variations occurred in the contract documents, however the contract price shall be adjusted in accordance with clause 35 of CC.

34.10 The Contract Price for (i) items for which quantities have been indicated as lumpsum/lot/set and (ii) items for which quantities were to be estimated by the Bidder, including additional items [falling under (i) and/or (ii)] considered necessary by the Bidder for successful completion of the works as per Technical Specification and indicated by him in his Bid shall remain constant unless there is change made in the Scope of Work by the Owner. The quantities and unit prices (a) subsequently arrived while approving the Bill of Quantities (BOQ)/ Billing break-up of lump sum /lot/set quantities and/or (b) quantities estimated by the Bidder/Contractor shall be for on account payment purpose only. In case additional quantities, over and above the quantities in BOQ/Billing Break-up and or estimated by the Bidder/Contractor, are required for the successful completion of the scope of work as per Technical Specification, the Contractor shall execute additional quantities of these items for which no additional payment shall be made over and above the lump sum Contract Price.

In case quantities of these items supplied at site are in excess of that required for successful completion of scope of work, such additional quantities shall be property of the Contractor and they shall be allowed to take back the same from the site for which no payment will be made for such excess quantities. Further, in case actual requirement of quantities for successful completion of scope of work is less than the quantities identified in the

approved BOQ/billing break up and/or estimated by the Bidder/ Contractor, the payment shall be made for the actual quantities utilized for successful completion of the project. It shall be the responsibility of the Bidder to pay all statutory taxes, duties and levies to the concerned authorities for such surplus material which would otherwise have been, lawfully payable. The Bidders shall submit an indemnity bond to keep BDA harmless from any liability before release of such material to the Bidder by BDA.

35. Payments for Variations

35.1 Payment for increase in the quantities of an item in the BOQ up to 25% of that provided in the Bill of Quantities shall be made at the rates quoted by the Contractor.

35.2 For quantities in excess of 125% of the tendered quantity of an item as given in the BOQ, the Contractor shall be paid at the rate entered in or derived from in the Schedule of Rates (applicable for the area of the work and current at the time of award of contract) plus or minus the overall percentage of the original tendered rates over the current Schedule of Rates prevalent at the time of award of contract.

35.3 If there is no rate for the additional, substituted or altered item of the work in the BOQ, efforts would be made to derive the rates from those given in the BOQ or the Schedule of Rates (applicable for the area of the work and current at the time of award of contract) and if found feasible the payment would be made at the derived rate for the item plus or minus the overall percentage of the original tendered rates over the current Schedule of Rates prevalent at the time of award of contract.

35.4 If the rates for additional, substituted or altered item of work cannot be determined either as at 35.1 or 35.2 or 35.3 above, the Contractor shall be requested to submit his quotation for the items supported by analysis of the rate or rates claimed, within 7 days.

35.5 If the Contractor's quotation is determined unreasonable, the Employer may order the Variation and make a change to the Contract Price which shall be based on Employer’s own forecast of the effects of the Variation on the Contractor's costs.

35.6 If the Employer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

35.7 Under no circumstances the Contractor shall suspend the work on the plea of non-settlement of rates for items falling under this Clause.

36 Submission of Bills for Payment:

36.1 The Contractor shall submit the bills to the Employer for the value of the work completed less the cumulative amount paid previously.

36.2 The Employer shall check the Contractor's bill and determine the value of the work executed which shall comprise of (i) value of the quantities of the items in the BOQ completed and (ii) valuation of Variations and Compensation Events.

36.3 The Employer may exclude any item paid in a previous bill or reduce the proportion of any item previously paid in the light of later information.

37 Payments:

37.1 Payments shall be adjusted for deductions other than recoveries in terms of contract and taxes, at source, as applicable under the law.

37.2 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

37.3 Currency of Payment

All Payments under the Contract shall be in Indian Rupees only.

37.4 Payment Schedule:

The Contractor shall prepare and Submit to the Engineer for approval a breakup of the Contract Price. This Contract Price break-up shall be inter-linked with the agreed detailed **activity chart** of the Contractor setting forth his starting and Completion dates for the various key phases of Works prepared as per condition in Clause 17.2 of Conditions of Contract. Any Payment under the Contract shall be made only after the Contractor's Price break-up is approved by the Engineer.

38 Compensation Events:

38.1 The following are Compensation events unless they are caused by the Contractor:

a) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.
b) The Employer orders a delay or does not issue drawings, specifications or instructions required for execution of works on time.
c) The Employer instructs the Contractor to uncover or to carry out additional tests upon work which is then found to have no Defects.
d) The Employer gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
e) The effect on the Contractor of any of the Employer's Risks.
f) The Employer unreasonably delays issuing a Certificate of Completion.
g) Other Compensation Events listed in the Contract Data or mentioned in the Contract.

38.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date is extended. The Employer shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

38.3 As soon as information demonstrating the effect of each Compensation event upon the Contractor's forecast cost has been provided by the Contractor, it is to be assessed by the Employer and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Employer shall adjust the Contract Price based on Employer's own forecast. The Employer will assume that the Contractor will react competently and promptly to the event.

38.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Employer.

39. Taxes:

39.1 The rates quoted by the Contractor shall be deemed to be inclusive of all applicable taxes(Exclusive of GST), duties and Levies that the Contractor will have to pay for the performance of this Contract. The Employer will perform such duties in regard to the deduction of such taxes at source as per applicable law.

39.2 The Unit Rates of the items are exclusive of GST as per the GOK Circular :FD417EXP-12/2024 Dated:09.08.2024

40. Price Adjustment:

40.1 Deleted (Not Applicable)

41. Liquidated Damages(Penalty):

41.1 The Contractor shall pay Penalty to the Employer at the rate per day stated in clause no.41.3 that the Completion Date is later than the Intended Completion Date (for the whole of the works or the milestone/stages as stated in approved Activity chart). The total amount of Penalty shall not exceed the amount as in clause no. 41.3.5. The Employer may deduct Penalty from payments due to the Contractor. Payment of Penalty does not affect the Contractor's liabilities.

41.2 If the Intended Completion Date is extended after Penalty have been paid, the Employer shall correct any overpayment of Penalty by the Contractor by adjusting the next payment of bill.

41.3 PENALTY FOR DELAY IN COMPLETION:

41.3.1 The Bidder shall clearly note that time is the essence of the Contract and the Substation, Terminal Bay, Transmission Lines & UG cable Transmission lines shall be completed within the Time frame specified in Clause No.17 of Conditions of Contract and hence no time extension shall be allowed on any account.

41.3.2 If the Contractor fails to successfully complete the Completion within the time fixed under the Contract, the Contractor shall pay to the Owner as Penalty, a Sum specified for each specified period of Delay. Equipment and Materials will be deemed to have been delivered only when all its Components, Parts are also delivered. If certain Components are not delivered in time, the Equipment and Materials will be considered as delayed until such time the missing Parts are also delivered. The total amount of Penalty for delay under the Contract will be subject to a maximum 10% of the Contract Price.

41.3.3 If the Contractor fails to successfully complete the trial operation in terms of the contract, within the time fixed under the contract or any extension thereof granted by the Owner by way of amendment to the notification of Award/ Contract agreement, the contractor shall pay to the owner, as Penalty in three/four/Five (3/4/5) Stages as detailed below:

1) **Penalty:**

Substation: Completion period - **Eight (08) Months** from the date of Letter of Intent to Award the Contract including monsoon period.			
No. of Stages	**Activities**	**Completion period**	**Percentage of penalty**
Stage-I	Approval of Design, Drawings & GTPs	**1 Months**	0.1% per day subject to maximum of 10% of the value of the stage i.e. 0.1 % per day of Rs. …. of Stage-I for the uncompleted portion of the work shall be deducted out of running bills as penalty.
Stage-II	Approval of Vendors for all equipments & Fixtures	**1 Months**	0.1% per day subject to maximum of 10% of the value of the stage i.e. 0.1 % per day of Rs. …. of Stage- II for the uncompleted portion of the work shall be deducted out of running bills as penalty.
Stage-III	Supply and fixing of Street light Fixtures along with automation Equipments with	**6 Months**	0.1% per day subject to **maximum of 10 %** of the total contract value shall be deducted out of final bill i.e. the

	trail and running in complete.		DWA amount, duly deducting the penalties already recovered during Stage-I&II for the uncompleted portion of the work. If project is completed 100% in all respect as per the stipulated completion time, then penalty if any levied due to stage wise delay shall be returned back without any interest to the contractor. In case the successful bidder fails to execute the supplies / works as per the program or opinion of purchaser, the supplies / works are progressing at a slow pace, the owner reserves its right to get the balance or part of supplies / works executed through other agencies at the risk and cost of the turnkey agencies, this is in addition to the right of the BDA to recover any damage from the contractor and also blacklisting.

41.3.4 The total amount of Penalty for delay under the Contract will be subject to a maximum of Ten percent (10%) of the value of Contract & the Owner has got every right to terminate the Contract without any liability if it crosses **10%**.

41.3.5 For Spares:

Unless otherwise specified in the Special Conditions of Contract, the **Penalty** for delay in supply of Spares, beyond the dates stipulated under Clause 27.2 of Section SCC shall be of **0.1 % (point one percent)** of the Price of undelivered Spares per day or part thereof.

The total amount of **Penalty** for delay under the Contract will be subject to a maximum of **Ten percent (10%**) of the value of Contract unless otherwise specifically mentioned in Special Conditions of Contract.

41.3.6 Penalty for not meeting performance guarantees during the performance and tests conducted during guarantee period shall be assessed and recovered from the contractor as detailed in technical specification/special conditions of contract. Such penalty shall be without any limitation whatsoever and shall be in addition to penalties/damages if any, payable under any other clause of condition of contract.

41.3.7 Recovery of Penalty :

The following procedure shall be adopted for recovery of the **10%** penalty amount on total contract value from the turnkey agency for delay in completion of the project.

a) Calculate the penalty recoverable from turnkey agencies as per DWA terms and conditions for those works delayed beyond contractual agreement period.
b) Limit the recovery of penalty to 10% of each bill value admitted in case of supply/Civil/erection bills.
c) If the total penalty to be recovered is not fully recovered under Supply / Civil/Erection bills, the balance penalty has to be recovered in lumpsum out of the final 10% retention bills of turnkey works.

Note: Procedure for accounting of penalty recovered from Supplier/ Contractor towards delay in supplies/completion of BDA works & its refund.

i) Agency shall submit a request for condonation of delay if any within 12(Twelve) months from the date of commissioning of the work/supply of materials with valid reasons and documentary proof.

ii) In case no request for condonation of delay is made by the Agency within a period of 12(Twelve) months, the penalty amount shall be transferred to Miscellaneous income immediately after completion of such period.

iii) Once any penalty amount is transferred to Miscellaneous Income Account, it shall, under no circumstances be considered for refund.

42. Advance Payments:

42.1 The Employer shall make payment to the Contractor of the amounts stated in the Contract Data by the date stated in the Contract Data, against provision by the Contractor of an unconditional bank guarantee in a form acceptable to the Employer issued by a Nationalized/Scheduled Bank in amounts equal to the advance payment.

42.2 The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest will not be charged on the advance payment. The Contractor is to use the advance payment only to pay for Mobilization expenses required specifically for execution of the Works. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Employer.

42.3 The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuation of the work done, variations, price adjustments, compensation events or liquidated damages.

43. Securities:

43.1 The Security deposit (including Additional Security for Unbalanced Tenders) shall be provided to the Employer no later than the date specified in the Letter of Intent to Award the Contract and shall be issued in an amount and form and type of instrument acceptable to the Employer. The Security deposit shall be valid until a date 90 days from the date of expiry of Defects Liability Period and Additional security for unbalanced tenders shall be valid until a date 90days from the date of issue of certificate of completion.

44. Cost of Repairs:

44.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

45. Completion:

45.1 The Contractor shall request the Employer to issue a Certificate of Completion of the Works and the Employer will do so upon deciding that the Work is Completion in all respects.

46. TAKING OVER:

The Employer shall take over the Site and the Works within seven days of issuing a certificate of Completion

47 Final Account:

The Contractor shall supply to the Employer a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Employer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 90 days of receiving the Contractor's account if it is correct and complete. If it is not, the Employer shall issue within 90 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Employer shall decide on the amount payable to the Contractor and make payment within 60 days of receiving the Contractor's revised account.

48 As built drawings and /or Operating and Maintenance Manuals:

a. If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract Data in both hard and Soft Copy.

b. If the Contractor does not supply the Drawings by the dates stated in the Contract Data, or they do not receive the Employer's approval, the Employer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

49 Termination:

49.1 The Employer may terminate the Contract if the other party causes a fundamental breach of the Contract.

49.2 Fundamental breaches of Contract include, but shall not be limited to the following:

a) The Contractor stops work for 45 days when no stoppage of work is shown on the current Program/Activity Chart and the stoppage has not been authorized by the Employer;

b) Deleted.

c) The Contractor becomes bankrupt or goes into liquidation other than for a reconstruction or amalgamation;

d) Deleted.

e) The Employer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Employer;

f) The Contractor does not maintain a security which is required;

g) The Contractor has delayed the completion of works by the number of days for which the maximum amount of Penalty can be paid as defined in the Contract data; and

h) If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in the executing the Contract.

For the purpose of this paragraph : "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Tenderers (prior to or after Tender submission) designed to establish

Tender prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition."

49.3 When either party to the Contract gives notice of a breach of contract to the Employer for a cause other than those listed under Sub Clause 49.2 above, the Employer shall decide whether the breach is fundamental or not.

49.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

49.5 If the Contract is terminated the Contractor shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

50 Payment upon Termination:

50.2 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Employer shall prepare bill for the value of the work done less advance payments received up to the date of the bill, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data. Additional Penalty shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

50.3 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Employer shall prepare bill for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract, and less taxes due to be deducted at source as per applicable law and make payment accordingly.

51 Property:

51.2 All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor's default.

52 Release from Performance:

If the Contract is frustrated by any event entirely outside the control of either the Employer or the Contractor the Employer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made.

F. Special Conditions of Contract (SCC)

1	Compliance with Labour Regulations
2	Protection of Environment
3	Labour
4	Arbitration
5	Statutory Clearances and Way leave
6	Scope of proposal
7	Duties and Powers of the Engineer and Engineer’s Representatives
8	Terms of Payment
9	Indemnity Bond
10	Defects Liability Period/Guarantee
11	Latent Defect Warranty
12	Certificate regarding acceptance of important conditions
13	General information
14	Taxes, Permits & Licenses
15	Patent Right and Royalties Defense of Suits
16	Limitation of Liabilities
27	Engineer's Decision
	Sourcing for supply of materials
	Packing, Forwarding And Shipment

28 Co-Operation with other Contractors
29 and Consulting Engineers No Waiver
30 of Rights
Certificate not to affect right of Owner and liability of Contractor
31 Training of Owner's Personnel
32 Progress Reports and Photographs
33 Guarantees, Penalties for Non-Performance
34 Spares
35 Transfer of the Title
36 Liability for Accidents and Damages
Delays by Owner or his Authorised Agents
38 Demurrage, Wharfage, etc
39 Force Majeure
40 Reconciliation of Accounts
Inspection and Tests
Notices
Clearance through Customs
Advertising

F. Special Conditions of Contract (SCC)

1. Labour:

The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

The Contractor shall, if required by the Employer, deliver to the Employer a return in detail, in such form and at such intervals as the Employer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such other information as the Employer may require.

2. Compliance with Labour Regulations:

During continuance of the contract, the Contractor shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, Employer shall have the right to deduct any money due to the Contractor including his amount of security deposit. The Employer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Contractor in no case shall be treated as the employees of the Employer at any point of time.

3. Protection of Environment:

The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation. During continuance of the contract, the contractor shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

4. Arbitration (Clause 24)

The procedure for arbitration shall be as follows:

(a) In case of dispute or difference arising between the Employer and the Contractor relating to any matter arising out of or connected with this agreement it shall be settled in accordance with the Arbitration and Conciliation Act 1996. The disputes or differences shall be referred to a Sole Arbitrator. The Sole Arbitrator shall be appointed by agreement between the parties; failing such agreement, by the Appointing Authority (any one of the Organizations as per list enclosed in Annexure)

b) Performance under the contract shall continue during the arbitration proceedings and payments due the Contractor by the Employer shall not be withheld, unless they are the subject matter of the arbitration proceedings.

Arbitration proceedings shall be held at Bengaluru, Karnataka, India

(c) The cost and expenses of arbitration proceedings will be paid as determined by the Arbitrator. However the expenses incurred by each party in connection with the preparation, presentation, etc., shall be borne by each party itself.

(d) Performance under the contract shall continue during the arbitration proceedings and payments due the Contractor by the Employer shall not be withheld, unless they are the subject matter of the arbitration proceedings.

5. TERMS OF PAYMENT:

5.1 All the Payment will be made by the Commissioner BDA under whose observation, direction and prior approval the Contract Work is executed.

5.1.1 STAGES OF PAYMENT:

The terms of Payment will be as stated below:

I) Electrical Material Components

Electrical Material Components Price (A+B= 100%)	Supply of materials as per the specification and approval/Acceptance by BDA	Fixing/ Erection/ Installation & Testing, Trail run and Commissioning
	(A)	(B)
Supply of materials as per the specification and Approval	65% of (A)	Nill
Fixing/Erection/ Installation	25% of (A)	90% of (B)
Testing, Trail run and Commissioning	5% of (A)	5% of (B)
Handing Over & Taking Over	5% of (A)	5% of (B)

Note : A- 90% of the Material cost (Where the item is of composite in nature i.e Supply,
fixing and commissioning)
B -10 % of the Material cost

i) Material Acknowledgement Statement issued by the site engineer and validated by the Engineer-in charge.

ii) Copy of the Certificate of Transit Insurance.

iii) Pre-Dispatch clearance certificate issued by the owner, prior to dispatch of the Consignment.

iv) Packing list/Bill of Materials.

v) Contractor's Detailed Invoice.

vi) Test Certificates.

vii) Physical Verification Certificate by the site Engineers and validated by the Engineer-in charge.

The above Payment terms are Subject to the following conditions stated herein below:

a. The Executive Engineer(Ele),BDA, Should ensure before making any payment towards materials received that the material has been supplied as per Activity Chart pertaining to the work concerned.

b. The work is going according to the plan. Without any unreasoning delay.

c. Notwithstanding anything contained to the contrary in the Bid documents, storage insurance for materials stored at the site by the contractor shall be to the account of the Contractor alone and no amount whatsoever is payable by the BDA.

6 Defects Liability Period/Guarantee:

6.1 The Contractor shall Guarantee that the equipment supplied by him will be new, unused and in accordance with the contract documents and free from defects in material and workmanship for a period of **60 (Sixty) months** in respect of LED Fixture and CCMS Automation including all accessories and High Mast commencing **from the date of successful demonstration at site/ Laboratory.** The Contractor's liability shall be limited to the replacement of any defective parts in the equipment of his own manufacture, under normal use and arising solely from faulty design, materials and/or workmanship provided always that such defective parts are repairable at the site and are not in the meantime essential in the commercial use of the equipment. Such replaced/ defective parts shall be returned to the Contractor unless otherwise arranged. No repairs or replacement shall normally be carried out by the engineer, when the equipment is under the supervision of the Contractor's Supervisory Engineer.

The performance security 5% over Contract price covers the items detailed in Clause No.10 of SCC & Contract Data Clause-5, shall be released after the expiry of the Operation and Maintenance period for the 60 months and successful handing over to BDA/BBMP as per the instruction of Engineer incharge ... provided the performance of the equipments found satisfactory.

6.2 In the event of any emergency where in the judgment of the Engineer, delay would cause serious loss or Damages, repairs or adjustment may be made by the Engineer or a third Party chosen by the Engineer without advance Notice to the Contractor and the Cost of such Work shall be paid by the Contractor. In the event of such action being taken by the Engineer, the Contractor will be notified promptly and he shall assist wherever possible in making necessary corrections. This shall not relieve the Contractor of his liabilities under the Terms and Conditions of the Contract.

Note:

Notwithstanding to the above, if the guarantee periods specified for each of the equipment/material in the technical specification, is more than the above periods, then the period stipulated for such equipment/material in the technical specifications prevails.

6.3 The repaired or new parts will be furnished and erected free of Cost by the Contractor. If any repair is carried out on his behalf at the Site, the Contractor shall bear the Cost of such repairs.

6.4 The Cost of any special or general overhaul rendered necessary during the maintenance period due to defects in the Equipment or defective Work

carried out by the Contractor, the same shall be borne by the Contractor.

6.5 The acceptance of the Equipment by the Engineer shall in no way relieve the Contractor of his obligations under this Clause.

6.6 In case of those defective parts which are not repairable at Site but are essential for the Commercial Operation of the Equipment, the Contractor and the Engineer shall mutually agree to a program of replacement or renewal which will minimize interruption to the maximum extent, in the Operation of the Equipment.

6.7 Detailed Specifications for Street Light with Individual fixture level Automation and Group Control

STREET LIGHTING WITH INDIVIDUAL FIXUTURE LEVEL AUTOMATION

SUB-SECTION SCOPE OF WORK FOR LED STREETLIGHTS

1) Performance Standards
2) TEST CERTIFICATES AND INSTRUCTION BOOK ETC
3) COMPLETENESS:
4) APPLICABLE STANDARDS
5) TECHNICAL REQUIREMENT FOR LED STREET LIGHTS
6) GENERAL
7) CONSTRUCTION:
8) MARKING:
9) TOTAL HARMONIC DISTORTION
10) LED LAMP EFFICACY
11) POWER FACTOR:
12) COLOUR RENDERING INDEX
13) DRIVER CIRCUIT EFFICIENCY:
14) CORRELATED COLOUR TEMPERATURE
15) LIFE EXPECTANCY:
16) WORKING CONDITIONS
17) SWITCHING
18) STANDARDS:
19) GENERAL REQUIREMENTS FOR STREET LIGHTING:
20) TEST AND TEST CONDITIONS:
21) WIFI Based Streetlight automation
22) Introduction
23) Solution components – lighting automation
24) Technical specifications
25) DCU/RF Gate Way specifications
26) SLC–radio module
27) RTU specifications
28) Specifications for the Intelligent Feeder Pillar (OUT DOOR TYPE) for Smart Lighting System: 108

SCOPE OF WORK FOR LED STREETLIGHTS

(a) The Selected Bidder shall carry out a proper survey of all the roads where the Dimmable LED Light Fixtures of **HIGH POWERD DISCRETE LED** are to be installed.

(b) The Bidders have to submit the complete implementation plan along with the name of official with contact number and duties who shall be deputed at the site for execution of the Project and after execution maintain all the installation related activities up to the project period.

(c) The street lightning shall be designed as per IS1944 & SP 72 -2010, The lux levels, Uniformity ratio & Transverse Uniformity are mandatory as defined in the following table

LIGHTING RECOMMENDATION FOR DIFFERENT ROAD TYPE – IS CLASSSIFICATION (As per IS : SP 72 -2010)

Sln	Classification of Lighting Installation	Type of Road	Avg. Illumination on Road Surface	Uniformity Ratio (Emin/ E Avg)	Transverse Uniformity (Emin/ Emax)
1	Group - A1	Important traffic routes carrying fast traffic	30	0.4	0.33
2	Group – A2	Other main roads carrying mixed traffic like main city streets	15	0.4	0.33

(d) Arrange for inspection and testing of all fixtures at the [factory] before dispatch by BDA officials.

(e) Supply, installation and commissioning of LED Street Lights to meet the requirement as defined in specifications, data sheets attached with the Technical Bid and required for completion of Project submitted by the Bidder.

(f) The Selected Bidder will have total responsibility of warranty and maintenance for the contract period of Five years. The Selected Bidder should open his site office for

smooth execution and maintenance of the Project. The Selected Bidder has to maintain necessary equipment on site which is required for implementation and maintenance of the project activities. The Selected Bidder shall maintain proper records and registers for the daily maintenance activities. They have to depute necessary technical and other staff for the same.

(g) All the machineries and equipment required for implementation of the Project is to be arranged by the Selected Bidder, BDA shall provide only authorization and necessary clearance and permission if required.

(h) The quality of the luminaries and lux levels will be maintained by Selected Bidder during the Project life. The Selected Bidder has to follow all necessary safety guidelines/directions issued by the BDA from time to time.

(i) The Selected Bidder shall make all the LED fixtures operational within a period of 8 months after award of contract as per the schedule submitted by the Bidder or as per the instructions of BDA.

(j) The design and specification of LED Lights will be given by the Selected Bidder as compared with old fittings along with necessary documentation.

(k) The Selected Bidder shall submit monthly monitoring and verifying report of energy saved.

(l) The Selected Bidder will have full responsibility of warranty of LED's/fixture for life of the project for 5 years and warrantee will start from the date of successful commissioning of the switching points.

(m) The Selected Bidder will have full responsibility of packing and transportation from the manufacturer's works to the site including insurance.

(n) The Selected Bidder will have full responsibility of receipt, storage, preservation and conservation of equipment at the site.

(o) The Selected Bidder will have full responsibility of pre-assembly, if any, erection, testing and commissioning of all the equipment.

(p) The Selected Bidder will have full responsibility of reliability tests and performance and guarantee tests on completion of commissioning;

(q) The Selected Bidder will have full responsibility of labeling of information which shall be distinctly and indelibly marked on the housing like to include , year of manufacturing, Batch no., Serial no., Name of manufacturer, Rated wattage and Voltage(Input) & rated Lumen. Fixture must carry the embossed name of the manufacturer, Stickers are not allowed.

(r) The installation of equipment's to be taken up as per the directive of BDA.

(s) The LED street lights installed to be linked with GIS/SCADA/CCMS appropriate remote monitoring and verifying system to ensure information on energy savings. Any failures or non-functioning lights beyond 48 (forty-eight) hours would be penalized as per this

Tender terms.

(t) The Selected Bidder shall maintain a call center to attend to complaints received by phone calls, mails, SMS etc. It shall have permanent employees to rectify complaints, routine maintenance etc. on 24x7 basis and will daily submit the reports of switching points in BDA office.

(u) The Successful bidder must have his own arrangement for the place with in Dr K shivaramakaranata Layout for Control System being centralized shall be operated 24x7 at the designated location to be intimated to BDA with its prior along with approved equipments/devices and complete set up always remain accessible to the staff of BDA and Civics.

(v) The Selected Bidder shall maintain the defined minimum storage space within Bangalore, preferably at Dr K Shivarama Karanata Layout for storage of standby LED Lighting Fixtures of a minimum 3% of the installed of fittings each type Based on all types of installations, Bidder the Bidders shall be invited to offer suitable fixtures to achieve the defined lux Levels broadly on the lines defined in the tender document.

(w) After a successful completion of the Project all material/ accessories installed by the Selected Bidder during the Project will be property of the BDA. The Bidder shall follow procedure detailed in this document to hand over the site along with the complete set up in satisfactory and working condition to BDA at the end of the Contract period. Before handing over the site, the contractor has to seek ‘handing over certificate’ and ‘no dues’ certificate from BDA officials.

Performance Standards:

a. A Bidder shall be disqualified if it is determined by the BDA at any stage of bidding process that the Bidder has made misleading or false representation in the form, statements and attachments in the proof of the qualification requirements. The Bidders shall also be disqualified if it fails to continue to satisfy the Qualifying Criteria during any stage of the evaluation process. Supplementary information or documentation regarding qualifications maybe sought from the Bidder at any time and must be so provided within reasonable timeframe as stipulated by the BDA.

I. The Bidder has to demonstrate successful operation of the offered LED street light product as indicated below, failing which the Bidder shall be rejected.

II. The Bidders are required to demonstrate their products for site testing and verification by a committee of BDA to demonstrate physically that the offered product meets the technical specification.

III. Six consecutive existing street light poles of the street light segment at different locations as directed by the committee shall be tested with the LED Street light fixtures proposed to be supplied by the Bidder.

[on the basis of the demonstration lux level measurements and watt loss of the installed fixtures will be checked and verified which will be documented by BDA committee. The saving and the lux levels determined at this stage will be considered to be final for the complete project life. No repeat observations /demos need to be done after the joint demonstration (with Bidder and BDA). The lux Level measurements will be done as per the IS Standards / SP-72-2010 National Lighting Code.

IV. The venue and time of testing shall be communicated after opening of Technical Bid

V. The Bidder has to report to the Engineer-in-Charge for testing along with the required products and instruments at least one 1 (day) before the commencement of the testing so that necessary arrangements for replacement of existing fixtures and installations for the testing and demonstration can be taken up.

VI. BDA or third party (appointed by BDA) will provide required measurement devices for the measurement of different parameters like total consumption including watt loss and lux levels

VII. The Bidders who fail to report for the testing with their products and instruments as specified shall be rejected.

VIII. The offers of the Bidder whose product fail to work satisfactorily during the testing shall also be rejected.

IX. The offers of Bidders whose products do not confirm to the specifications during the onsite testing shall be out rightly rejected.

X. No cost for the demonstration shall be borne by BDA. BDA shall also not be held responsible for accident or for any damage or failure of the products or instruments during the demonstration. Adequate safety arrangements need to be made by the Bidder for safety of human being and equipment's .

The illumination output of the LED fixtures reduce over the lifetime in accordance to norms of L70 of IS:16103 (Part-2). This is termed as Lumen Maintenance. The LED fixtures are expected to not lose Lumen output by more than 80% over the period of 50,000 hours.

Thus lux levels should be defined for various types of Roads & High Mast bids, w.r.t. initial lux levels & depreciated levels over the lifetime.

The luminaries should be able to operate with constant light output from 90V–300V supplied voltages using the same driver

- Power Factor of the electronic driver should be at least > 0.9 and with THD<20%,

- The luminaries should be full cut off type as per IS 1944, the throw & spread should be able to deliver uniform light with exactly the desired intensity. The Luminaries shall employ structured LED array for optimized roadway photometric distribution with photometric lenses designed to optimize bid efficiency and minimal glare, individual optical lens to be provided on each LEDs on a lens plate.
- The fixture should have a minimum impact resistant of IK 07 while the ingress protection with suitable protection by using cover for driver and LEDs should confirm to minimum IP 66.
- Heat dissipation should be managed through a built-in external heat-sink.

  For Driver an Internal type test report complying with international standards with reference to various general and safety requirements & parameters needs to be submitted. The efficiency of the driver shall be more than 85 % in all cases at all times during project period.

TEST CERTIFICATES AND INSTRUCTION BOOK ETC.

The supplier/ Contractor shall furnish to the department the following documents along with the consignment.

a. Printed Pamphlets/Catalogues: Four Copies for each item of equipment.
b. Drawing and detailed technical specification of all the equipment's.
c. Any other relevant information to be incorporated at the time of placing the work order four copies.
d. The manufacturer/ Contractor shall furnish the following certificates along with Consignment of material. Certification should be obtained from ERTL /MNRE or any other NABL certified LAB for optics, Electrical, Electronics & Mechanical parameters only.

   i. The fixture manufacturer must show proof that the LEDs they use have been tested and approved to IESNA's LM80-08. The manufacturer must be able to provide the test data set to establish the authenticity and genuineness of the LEDs.

   ii. The Contractor shall provide the Photometric test report of the luminaries as per LM79. Test for the Street Lighting luminary should be preferably done in a Gonio photometer (not in an optical sphere since the size of sphere will be too big) with due precautions (temperature, humidity, airflow, input power supply) and will

provide test data on total luminary flux (absolute Lumens), Luminous efficacy (ratio total lumens / total input power in watts), Luminous intensities (absolute candela) at typical C and Y angles. The Contractor should have sufficient ability to simulate the test data for the desired bid and meet the bid criteria e.g. lux level & uniformity on given road.

iii. The efficacy (ratio of lumen output from luminary to the luminary wattage) of the luminary at test conditions shall be more than 130 lm/W. The quality of optical distribution will be integrally calculated, from wattage required per meter square or road stretch in meters meeting criteria for lux level & uniformity, while comparing the performance of luminary and set up a minimum standard for acceptance

COMPLETENESS:

Any accessories/item which may not have been mentioned in the specification but are required for satisfactory commissioning the work shall be deemed to be included in the contract and shall be provided by the Contractor without extra charges later on.

TECHNICAL SPECIFICATIONS

APPLICABLE STANDARDS

The required materials should confirm to the following Indian & International standard specification.

S. No.	IS No. / International standard No.	Specification
1	IS 16105	Measurement of lumen maintenance of LED sources (LM80)
2	IS 15885 (Part I and II)	Safety of Lamp control gear (equivalent IEC in case of driver)
3	IS 16104	Performance requirement for Electronic Control gear for LED modules (IEC equivalent)
4	IS 16106	Method of electrical and photometric measurements of solid state lighting product (LM 79)

5	IS 16108	Photo biological safety of lamps and lamp systems (IEC equivalent)
6	IEC 60598(60598-2-3)	Particular requirements – Luminaries for road and street lighting
7	LM-79	Approved method for electrical and photometric measurements of solid-state lighting products
8	LM-80	Approved method for measuring maintenance of LED light sources
9	IEC 61347-1,-2-13,	Particular Requirements for D.C. or A.C. Supplied Electronic Control Gear for LED Modules.
10	IS 10322	Specification for the luminaries
11	SP 72- 2010	National Lighting Code

Materials meeting with the requirements of other authoritative standards, which ensure equal or better quality than the standards mentioned above, shall also be considered. In such case the salient points of difference along with advantages between the standards adopted and the specified standards shall be clearly brought out in a schedule For values not available in relevant IS values indicated in the GTP/ specification shall be valid. In case of discrepancies between values of IS and GTP the better will prevail.

TECHNICAL REQUIREMENT FOR LED STREET LIGHTS

GENERAL CONSTRUCTION:

Item	**Request Values**
Rated Voltage	100 - 270 volts AC
Rated Frequency	50Hz
Usage	Avg.12hrs/ day
Colour	Cool White

The lamps should be robustly built with adequate

mechanical strength, heat resistance, insulation resistance and flame resistant material complying with relevant clauses of IS 16102. It should be made of pressure die cast Aluminium with toughened glass / poly carbonate cover suitable for mounting on a pole pipe bracket with complete locking arrangement. The complete housing of the lamp should have an ingress protection level of IP 66 for the lamp compartment as well as the driver circuit.

The viewing angle of the luminaries shall be suitable for street lighting bids to achieve required uniformity. The weight of the lighting fixtures should be compatible with the existing pole and its associated structures. The total power consumption in the LED lighting fixture shall not exceed the total guaranteed power consumption including power consumption in the electronic circuit of the driver for that particular bid over the entire voltage range given in clause 2.1. The fluctuations in line voltage shall have no visible effect on luminous intensity of the LED luminaries.

MARKING:

The following information shall be distinctly and indelibly marked on the housing:

a) Manufacturer's name. /Year of Manufacturer.
b) Rated voltage (marked "V" or volt).
c) Rated wattage (marked "W" or watts)
d) Rated lumens.
e) Batch No. /Serial No.

Not for sale –Smart LED Street Light Project, BDA- Bengaluru.

TOTAL HARMONIC DISTORTION:

Should be less than 20%.

LED LAMP EFFICACY:

Should not be less than 150 lumens per watt.

POWER FACTOR:

Should be greater than 95% including the driver circuit

COLOUR RENDERING INDEX

Nominal CRI of 70.

DRIVER CIRCUIT EFFICIENCY:

Should be greater than 90%. The control gear should be complying with IEC 61347-2-13 and relevant IEC certification as per requirement. The driver should comply with CISPR-15 for limit and methods of measurement of radio disturbance characteristic. Retaining to drivers need to be produce.

CORRELATED COLOUR TEMPERATURE

Should be between 5000º K to 6500° K.

LIFE EXPECTANCY:

Should be 50000 burning hours at normal ambient conditions or better for L70 as per IS 16102 (Part-2):2012.

WORKING CONDITIONS:

Temperature: -5 to50°C Humidity: 10%to90%RH

SWITCHING

The street light to be operated through group switching device for operation during night hours only and the street light should be operated individually from the feeder panel for repair purpose in day time.

STANDARDS:

A	**FIXTURE**
1	The luminary should confirm to IEC 60598(60598-2-3)/IS10322
2	LM-79 Fixture Test Report.
3	EBDA test report(EN 55015,EN 61547,61000-3-2)
B	**LED:**
1	LM-80 LED Test report.
C	**DRIVER:**

1	IEC 61347-1,-2-13, Test report
2	IEC 62384. Test report

GENERAL REQUIREMENTS FOR STREET LIGHTING:

i) The fixture shall be capable of installation on the existing poles, brackets, and in the existing lighting segment as per specified in the document.

ii) Only OSRAM/ LUMILEDS/CREE (USA) make LEDs shall be used for the street lights.

iii) The luminaries casing/housing shall be of pressure die cast aluminium having high conductivity heat sink material.

iv) The electronic components used shall be as follows:-

IC (Integrated circuit) shall be of industrial grade or above.

- Metallic film / Paper/Polyester Capacitor shall be rated for a sustained operating temperature of 105ºC.
- The resistors should be preferably made of metal film of adequate rating. The actual rating versus loading shall be by a factor of 3.
- The junction temperature of the Switching devices such as transistors and MOSFETs etc. shall not exceed 125ºC (allowing thermal margin of 25 ºC).
- The protective cum adhesive coating used on PCBs should be cleared and transparent and should not affect colour code of electronic components or the product code of the company.
- The construction of PCBs and the assembly for components for PCBs should be as per IS standards.
- The electronics covered for this equipment shall pass all the tests called for in the above specification. The Bidder shall indicate the deviation or compliance otherwise the offer shall not be considered for evaluation.
- The infrastructure for Quality Assurance facilities as called for in the above specification must be available at the manufacturing facility. In house testing facility for Quality Assurance should be present. The compliance shall be indicated clearly in itself.

v) Care shall be taken in the design that there is no water stagnation anywhere and entire housing shall be dust and water proof having IP66 protection as per IEC 60529.

vi) The manufacturers shall ensure that the fixture is designed in such a manner that it conducts the heat away from the LEDs as efficiently as possible. The design shall ensure that the junction temperature is kept as low as possible during operation. Thermal management shall be in such a way that Luminary shall have trouble free operations from -5 ºC to +50ºC. The following test shall be done to determine efficient thermal management:

vii) All the material used in the luminaries shall be halogen free and fire retardant confirming to UL94.

viii) Lighting Distribution Type Cut Off/ Semi Cut Off type as per IESNA. Type II/ III Lighting Distribution.

ix) The manufacturer /Bidder should also offer Comprehensive Maintenance Contract (CBDA) for the post Warranty period.

x) All the supplied lamps, luminaries and fittings shall carry permanent marking as “Not for sale – BDA”…..

Note:

1) All the materials supplied shall have manufacturer’s test certificate.

2) The Bidder shall have to mention the make of the materials to be supplied.

3) Technical specifications with manufacturer’s literature shall be attached along with Technical Bid.

4) The specifications mentioned above are minimum requirements of BDA; the Bidder can quote for higher specification for better performance & life span.

5) Material testing charges of ERDA or any other laboratory shall be borne by the Contractor.

TEST AND TEST CONDITIONS:

(i) Design Qualification Testing shall be performed by the manufacturer or an independent testing lab hired by the manufacturer on new LED module/ array designs and when a major change has been implemented on an existing design.

(ii) The vendor shall submit manufacturer’s test certificates complete with verification of Design Qualification Testing details by an independent testing authority.

(iii) The fixture manufacturer must show proof that the LEDs they use have been tested and approved to IESNA's LM80-09. The manufacturer must be able to provide the test data set to establish the authenticity and genuineness of the LEDs.

2. Tests conducted on LED luminaries are classified as: 1) Type test, 2) Acceptance test, 3) Routine test.

3. Type Test shall be carried out to prove confirmation with the requirements of specification and general quality/ design features of the unit. In case of any change in Bill of Material or design of unit, complete type test shall be repeated. If any sample fails in any of the type tests, fresh samples shall be taken and tested. If any sample again fails in that test, the whole lot shall be rejected.

4. Acceptance Tests are carried out by an inspecting authority from BDA at the Contractor's premises on sample taken from a lot for the purpose of acceptance of a lot. Acceptance tests shall not be carried out from particular size or lot on which type tests have already been conducted. It should be done in a NABL accredited Lab.

5. Routine Tests shall be performed by the manufacturer on each complete unit of the same type and the results shall be submitted to the inspecting authority from BDA, prior to offering the lot for acceptance test. The Bidder shall maintain the records with traceability.

5.1 Sample size and criteria for conformity.

(I) The luminaries shall be selected from the lot at random. In order to ensure randomness of selection, procedures given in IS 4905-1968 (Reaffirmed 2001) may be followed.

(II) Test Scheme:

Sr. No.	Description of Test	Type Test	Acceptance Tests	Routine Tests
1	Visual and Dimensional check	y	y	y
2	Checking of documents of purchase of LED	y	y	y
3	Resistance to Humidity	y	-	-
4	Insulation resistance test	y	y	y
5	HV test	y	y	y
6	Over Voltage Protection	y	-	-
7	Surge protection	y	-	-
8	Reverse polarity	y	y	-
9	Temperature rise	y	y	-
10	Lux measurement	y	y	-
11	Fire retardant	y	-	-
12	Test for IP66	y	-	-

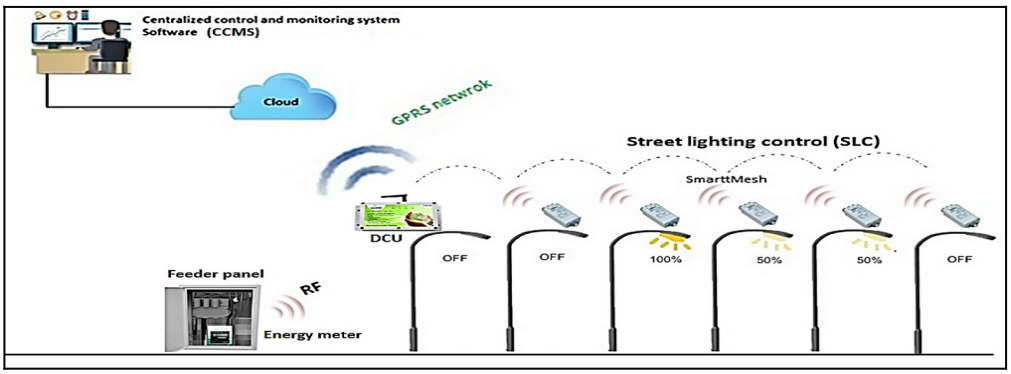
	Protection			

WIFI Based Streetlight automation

Introduction

The street lighting automation for Smart City development on. It mentions the components, technicalities and commercials of the solution, for a state of the art, indigenous wireless streetlight automation solution designed, developed and manufactured in India

:General Solution architecture schematic



Solution components – lighting automation

Sr. no.	Items	Remarks
1	**Street light controller (SLC)** **Model: WiART-LC-R1D1**	**SLC is a standalone street lighting controller device that shall be installed on every street light for On-Off-Dim-Fault detection purpose.** • It shall have inbuilt wireless radio based on sub 1 GHz LPRF technology. • The SLC enabled streetlights form a mesh network and support two-way communication with the cloud based lighting management server software. • It shall have inbuilt support for relay for on / off of lighting fixture up to 400 W. • It shall have analog output/ PWM input facility with 0-10V step dimming support with external / inbuilt compatible light fixture dimmer / driver. Digital input facility for motion sensor based light on / off support. • It shall have support of fault detection at fixture and shall send the notification to lighting management server software. • The radio module shall have its frequency of operation from ISM band 865-867 MHz (De-

Sr. no.	Items	Remarks
		licensed band in India by WPC) • It shall have transmitted power support from 10 to 16 dBm as per RF standard IEE 802.15.4 • It shall have minimum communication range upto 100 meters with near line of sight. • It shall have advance communication software layer of Smartt Mesh and possess self-forming, self-healing network, hops up to 20 with facility to configure PAN. • It shall have data security of 128 bit AES encryption with support of ***over the air remote firmware and configuration upgrade*** from the lighting management server software. • Note : The enabled with 4G(to be upgraded to 5G or advanced protocol at the time of handing Over as per the directions of Engineer Incharge)
2	**Smart meter (At feeder box)**	**This is a three phase / single phase metering unit that shall be installed at existing feeder box for the street light energy consumption measurement.** • It shall be class 1 ISI mark energy meter with interface of radio based on sub 1 GHz LPRF technology. The intelligent Feeder Pillar with CCMS Panel must have the separate smart Energy Meter/Multifunction Meter other than BESCOM Smart Energy Meter that supports communication with RTU on RS 232/485 PROTOCOL through wire less communication • The Smart meter shall be a part of a mesh network and support two-way communication with the cloud based lighting management server software. • It shall measure electrical parameters like voltage – current per phase, kWh, power factor for further load analysis.
3	**RF to BLE gateway**	**This is a standalone street lighting controller device that shall be used as local gateway controller. It is carry-on device for debugging / run time on / off / dimming of lighting fixture**

Sr. no.	Items	Remarks
		using Android based mobile application. • It shall have inbuilt wireless radio based on sub 1 GHz LPRF technology and BLE 4.0 module – operated over battery. • It shall be a part of mesh network and support two-way communication with the Smart phone / tablet over android application software.
3	**Data concentrator unit (DCU)**	**It shall be a standalone device with** front end of radio based on Sub 1 GHz LPRF technology and backend of GPRS / Ethernet. • The DCU device should support collection and reporting of the metering data at every 15 minutes'interval. The interval of reporting should be configurable. • The DCU device shall have an inbuilt RTC with required battery backup. It should sync up automatically with the centralized server software. • Internal storage: SD card, 8 GB for offline storage of data such that the data can be send to the server when GPRS connectivity is available. • The DCU unit has a battery back of at least 8 hours. • Enclosure Box is of seven tank process metal enclosure with proper lock-n-key arrangement. • The DCU shall send the data to the lighting management server software over reliable GPRS communication backbone / Ethernet based backbone and efficient communication protocol. • The DCU is capable of switching ON and OFF the lights connected to it ON demand and as well as per schedule configured. • The DCU should support over the air remote firmware and configuration upgrade mechanism. • One DCU should support up to 200 wireless nodes / lighting fixtures / SLC and energy meter. • It should be a part of SmarttMesh network. • Note : The enabled with 4G(to be upgraded to 5G or advanced protocol at the time of handing Over

Sr. no.	Items	Remarks
		as per the directions of Engineer Incharge)
4	**Lighting management server software (Web based CCMS software)**	• The lighting management server software shall be a software that can be installed on the server of the ULB / Municipal Corporation. • The lighting management server software shall be made such that it can support more than 20,000 wireless street lighting switch points support. • The server software shall be configurable as per the site requirement for ease of access and navigation • It should support search and filters for ease of usage and navigation to identify faulty, not connected, healthy switch points. • It should support a dashboard with below functionality - Electrical KWH, per phase voltage, current. - GPRS connectivity status. - Presence of alerts / alarms via an indication. - Button to do an “On demand” ON / OFF / DIM of individual switching point. • It should have the ability to configure the switching points, group of switching points, address. The naming should support alphanumeric string. • The server software should support configurability for thresholds for under voltage / over voltage, wattage of lights connected. • The server software should be able to configure the ON / OFF / DIM schedule for a switch point or group of switch points based on Sun rise / Sunset and configurable time as desired. • It should have a mechanism to detect faulty lights downside a switch point. • The software shall support configuration of five mobile numbers and five email address per switch points for SMS and email notification of alerts / alarms. In case of faulty light, the SMS sent should

Sr. no.	Items	Remarks
		also send the GPS coordinates and id of the light. • It should support user role creation with different access permissions for User / Supervisor / Manager / administrator • The device configuration shall support configuration of the APN and network service provider details. The software shall be built such that it should be network service provider agnostic and should automatically align to the change in service provider. • The lighting management software should support summary screen to get a tabular and or graphical overview of the complete installation status – healthy / faulty / not connected. • The lighting management software should be able to identify the exact location of the light on which the fault has occurred with relevant GPS co-ordinates. • The lighting management software should have a switch point summary view that shall provide a complete status of an individual selected switch point. It should show the electrical parameters. • The server software should have integration with google or relevant maps to show the location of switch points on the map. • The server software should support following reports: - Operational hours report. - Fault report (details of fault detected at what time) for all unresolved faults for the particular period. - Alert report (with date and time stamp). - Energy consumption report (with date and time stamp) - User activity report (to detect who had logged in at what time and what action was done on the server). - Energy saving report.

Sr. no.	Items	Remarks
		- Fault penalty report as per the agreed SLA. • The user interface of the software should support accessing of reports for daily, weekly, monthly or custom date selection. • The resolution of the server software shall be such that it can be accessed from a mobile / tablet via GPRS / 3G back bone. • The lighting management server software should support export of the report data in a CSV format for further analytics. • The server software should be able to report the alert / alarm notification via SMS and email to pre-configured mobile numbers and email address. • It should have required antivirus, malware and protection against hacking attacks. Note : The enabled with 4G(to be upgraded to 5G or advanced protocol at the time of handing Over as per the directions of Engineer In charge)

Technical specifications

DCU specifications

Specification	Description
CPU	Microcontroller / Microprocessor based solution.
Operating system	Linux
RF specifications	
RF standard	IEEE 802.15.4g
Frequency of operation	865 to 867MHz
Receiver sensitivity	-110 dBm maximum
RF output power	16 / 27 dBm, programmable
Data rate	200 Kbps
Modulation	4 GFSK supported
Antenna options	SMT connector for external antenna
Encryption	128-bit AES encryption supported
RF range	600 meters+(LOS) 80 meters+ (one concrete obstacle)
Communication interface	Ethernet, 100 Mbps
Mesh networking device	Smart Mesh
Storage	2GB SD card (expandable)

RTC	With coin Cell
Watch dog timer	External circuitry
Antenna	Internal antenna
Power supply	230 V AC

SLC–radio module

Specification	Description
Power supply	110-250 V AC
RF range	300+ meters with single concrete obstacle
	3+ Kilometers near line-of-sight
RF specifications	RF standard IEEE 802.15.4
Frequency of operation	865-867 / 868 / 915 MHz
Receiver sensitivity	-106 dBm maximum
RF output power	27 dBm, Programmable
Data rate	200 Kbps
Modulation	4 GFSK supported
Antenna options	Wire antenna, optional UFL connector for external antenna.
Fault detection	1*
Analog input	AI-1, 0-5 V for temperature or light sensing
Analog output	AO-1, 0-10 V dimming output / PWM output*
Digital input	DI-1, 0-10 V optical isolation
Relay output	DO-1, 5A, 230 V AC operated*
LED indications	On enclosure
Temperature range	0 to 60 degree Celsius
Surge protector	Supported surge protection 10KV / 5KA (optional)
Physical dimensions	190 x 100 x 60 mm

RTU specifications

Parameters	Description
CPU	Controller based
External memory support	SD card slot, SD card support of 2GB.
GPRS specification	Dual Band: EGSM 900 MHz, DCS1800 MHz GPRS multi-slot class10/ class 8 capability with GPRS coding schemes CS-1, CS-2, CS-3 and CS-4.
Digital inputs	9, optically isolated Interface with auxiliary output for fault detection and door

	switch.
Digital outputs	4Potential free relay out with 2A / 230V AC to drive the contactors for switching the lights. 1 for fault indication on the panel.
Analog Inputs	1, voltage type 0 - 5V.
LED indication	Power, GSM / GPRS, health status, meter communication.
Power supply	Built-in 10W three phase SMPS.
Dimensions with enclosure	Approximate 265 mm x 130 mm x 75 mm, bought out enclosure with DIN rail mounting support.
GSM antenna	External, Whip antenna, SMA type connector.
RTC	External RTC with coin cell back up.
Built-in battery	Inbuilt battery that shall support operation of up to 8 hours (switching and operating the contactor shall not be supported.)
Remote upgrade	Over-the-air upgrade
Antenna	Dipole wire antenna
RF range	80+ meters with single concrete obstacle 800+ meters near line-of-sight
Communication port	RS232 / RS485
Optional	
RF specifications	RF standard IEEE 802.15.4g
Frequency of operation	865-867 MHz
Receiver sensitivity	-110 dBm maximum
RF output power	15 dBm, programmable
Data rate	200 Kbps
Modulation	4 GFSK supported
Antenna options	Whip antenna

Appendix-1

Part-A

TECHNICAL DATA SHEET ON LED BASE LIGHTING LUMINARIES FOR STREET LIGHT

Guaranteed Technical Particulars (To be submitted by the Vendor)

A. Technical Particulars

TECHNICAL PARAMETER's	BDA Specification Requirement	VENDOR Confirmation
Light Source	High Power Discrete LED	
Make of LED	Cree/OSRAM/ Lumiled	
Make of Fixtures/ Luminaries	To be given by the Bidder	
Lighting Distribution Type	Cut Off to be confirmed as per IESNA Type II/ III Lighting Distribution/ IS1944	
System Efficacy (Optical Efficacy) LED Chip Efficacy LED higher Voltage cut-off LED lower Voltage cut-off	>130lm/W >150lm/W 320V 70V	
Operating Voltage Range	90- 270 V	
Operating Voltage	230V± 10%	
Operating Frequency	50Hz±3 Hz	
Total Harmonic Distortion	< 20%	
Power Factor	>0.90	
Operating current	350 to 700mA	
Usage Hours	12 hrs / Day	
Optics	Peanut Lens	
Surge Protection	>/= 4 KV	
Impact Resistance	>IK07	
Life Span	60000 Burning hours with 80% Lumens	
Colour Temperature	5000- 6500K(suitable for "Cool White" light)	
Colour Rendering Index (CRI)	Nominal Value - CRI 70	
Uniformity Ratio (Ul)	>70%	
Ingress Protection	IP 66	
Driver efficiency	>85%	
Optical Efficiency	>95%	
P/N junction temperature	<100DegreesC at Junction point and <60at Heat Sink	
Working Temperature	-5 degree to 50 degree	
Working Humidity	10% to 90%RH	
Construction	LED's are mounted on a PCB which is thermally glued to an aluminium sheet provided with aluminium fins firmly connected to the housing for excellent heat dissipation	
Housing	An aesthetically appealing, IP66, Streetlight luminaries comprising of optimally designed die cast Aluminium Housing with Bidder name embossed on the same. Should have heat resistant toughened glass/ UV resistant Acrylic with all necessary accessories fitted with SS clamps. It should comply with LM6 norms	

A. TESTING & DOCUMENTATION

Performance Characteristic	Standards and Methods to be adhered to	Required Documentation	Vendor to Confirm & Attach relevant certificates from Relevant NABL/ ERDL/ UL certified lab
Integral LED	IESNA	Laboratory test results must be produced using the specific modules/arrays and power supply combination that will be used in Production	
Lamp Efficacy:	LM80 2008		
Light Output Input Power	ANSIC82.2- 2002		
Power Factor	ANSI C82.7 2002	Laboratory test results must be produced using the specific modules/arrays and power supply combination that will be used in Production	
Lumen Maintenance (L70)for LEDs	IESNA/ LM- 80-2008	LED manufacturer test results for Minimum 6000 hour lumen maintenance for the LED packages /arrays/ modules using the integral LED lamp Lumen maintenance data must meet at least the following conditions: • Collected at LED case or solder point temperature (Ts) equal to or greater than the verified TMP temperature of the integral LED lamp and Measured at a forward drive current equal to or	

Performance Characteristic	Standards and Methods to be adhered to	Required Documentation	Vendor to Confirm & Attach relevant certificates from Relevant NABL/ ERDL/ UL certified lab
		greater than the drive current applied to the LEDs in the integral LED lamp.	
Colour Rendering index for Luminaries	ANSI C78.377-2008 / IESNA/ LM 79	Laboratory test results must be produced using the specific modules/arrays and power supply combination that will be used in Production	
Chromaticity & Co-related Colour Temperature	ANSI C78.377-2008 / IESNA/ LM-79-2008 / CIE15:2004/ IESNALM-58-94 / IESNALM-16-93	Laboratory test results must be produced using the specific modules/arrays and power supply combination that will be used in Production	
Photo-biological safety of lamps and v	IEC 62471	Laboratory test results must be produced using the specific modules/arrays and power supply combination that will be used in Production	
Colour Spatial Uniformity and clolour Maintenance	ISSNA / LM-79-2008 CIE 15: 2004 IESNALM-58 IESNALM- 16 IESNALM-80	Self Certification	
Audible Noise	Class –A Sound Rating Power Supply not to exceed 24 dB	Self Certification	
Integral LED lamp & Fixture Warranty		Provide copy of the actual three-year	

Performance Characteristic	Standards and Methods to be adhered to	Required Documentation	Vendor to Confirm & Attach relevant certificates from Relevant NABL/ ERDL/ UL certified lab
		Manufacturer warranty included in the packaging.	
Safety of LED Lamps		LED manufacturer test results of the safety test report with a general coverage statement from an OSHANRTL	
Test certificates		The vendor shall furnish test certificates certifying performance of the integral luminaries' for the tests mentioned as below: a) Insulation resistance test b) HV test c) Over Voltage Protection test d) Surge Protection test e) Reverse polarity test f) Temperature rise test g) Fire Retardant test h) Photo metric tests i) IP class test j) Power Consumption	

Appendix 1 Part - B

Guaranteed Technical Particulars (To be submitted by the Bidder for each type of LED fitting proposed)

S. No	Parameters	Purchasers value	Guaranteed Value
1	LED Street Light operating voltage	90V-~~300~~ 270V	
2	LED Street Light operating frequency	50Hz± 3Hz	
3	LED Luminous efficacy in lumens per watt (submitted by Bidder)	130lumen/watt	
4	System Lumen efficacy in lumens per watt (submitted by Bidder)	150lumen/watt	
5	Total LED power consumption excluding driver circuit per unit	------ watt	
6	Total system power consumption per unit Including LED and driver circuit (Filled by Bidder)	------ watt	
7	Avg. luminance at road surface(Filled by Bidder)	---------	
8	Uniformity (Filled by Bidder)		
9	Driver circuit Efficiency	>85%	
10	Total harmonic distortion	<20%	
11	Colour rendering index	Nominal 70	
12	Lumen maintenance	70% or better	
13	Dimension and weight	Similar to existing lamps For compatibility	
14	Insulation resistance between live and Accessible parts of the lamp	Not less than 4MΩ as per IS	
15	Conformity with minimum of IP-66 Fixtures	Required	
16	LED Life	50000 hrs	
17	Power factor	>0.90	
18	Driver life	Minimum 50% of LED life	
19	Colour temperature	5000-6500 deg K	
20	No. of LEDs used and wattage of each LED	--	
21	Average LED viewing angle	120	
22	Make of LED	Cree(USA)/ Lumiled/ Osram	
23	Working temperature	-5to 50^0C	
24	Working humidity	10-90%RH	
25	Internal surge protection against lightening or other electrical surge	>4 KV	
26	Lumen per watt of system (submitted by Bidder)		
27	Impact Resistance	IK07	

28	LED Drive current*Range (submitted by Bidder)		
29	Power supply	Covered power supply required	
	LED higher Voltage cut-off LED lower Voltage cut-off	320V 70V	

1. For values not available in relevant IS Values indicated in the GTP/ Specification shall be valid.
2. In case of discrepancies between values of IS and GTP, the better will prevail.
3. Pertinent type test reports, literatures, catalogues, photometry, etc. as required substantiating The above and list and index for comprehensive reference should be attached.

4. *BDA shall have the right for testing of driver current from the reputed lab.

Specifications for the Intelligent Feeder Pillar (OUT DOOR TYPE) for Smart Lighting System:

The intelligent feeder pillar will be equipped with at necessary devices, equipment's, software, optical converter, concentrator and all others equipment's responsible for successful operation of the street lighting system which will have the following features:

a) Centralized Control
b) Fault detection and report
c) Metering
d) Burn hour reports for proactive lamp change
e) High-up time & immediate fault rectification
f) Dimming of the lights
g) Load balancing and load shedding (For selected Group of lights)
h) Real time control
i) Provision of camera at later stage at strategic locations.
j) The interface device used for the intelligent feeder pillar should be capable two way communication with the SCADA control room of the MCG through Optical Fiber. The scope of the Intelligent Feeder Pillar (OUT DOOR TYPE) covers every such item which is responsible for smart lightening system and communication with the SCADA control room of MCG
k) Street light feeder pillar shall be suitable for 415 V, 3 phase, 4 wire, and 50Hz supply and shall outdoor type with canopy and shall be free standing floor type.
l) It should be robust in construction and capable of withstanding the vibration normally experienced due to vehicular traffic.
m) The cubical will be required to be mounted on cement concrete plinths by the road side or in central verge.
n) Street light feeder pillar shall be provided with incoming & outgoing MCCB/MCB of appropriate rating and in desired quantity depending on total no. of circuits in use. Outgoing shall have a least one spare circuit all the time. Major switchgears shall have potential free terminals for communication with RTU.
o) Street light feeder pillar shall be made up of CRCA sheet steel and shall be dust and vermin proof providing a degree of protection of IP 55. The thickness of sheet steel enclosures shall

be 2mm minimum for load bearing and 1.6mm for other members.

p) Bus bars will he made up of aluminium, colour coded for easy identification and of appropriate size.

q) Internal hinged doors shall be provided, where all the material & control equipment shall be flush mounted. The incomer switchgear shall have interlocking mechanism so as to prevent opening of the door when the switch is ON and to prevent closing of the switch when the door is not fully closed. However, a device for bypassing the door interlock shall be provided to enable the operation of the switch with the door open, when necessary, for examination/maintenance.

r) External hinged door shall be provided with all round neoprene gasket with padlocking arrangement.

s) AII accessible live connection/metals shall be shrouded and it shall be possible to change individual fuses, switches, from the front of the boards/panels without any danger of contact with live parts.

t) Adequate interior cabling space and suitable removable cable gland plate (min. 3mnm thickness) plates shall he provided for bottom entry of cables through glands. Necessary number of glands to suit the required cable sizes shall be provided. Cable glands shall be double compression type made of chrome-plated brass.

u) Every street light feeder pillar will have LED type "SUPPLY ON" indicating lamps. Indicating lamps shall be of the clustered LED type and low watt consumption. Lamps shall be provided with series resistors.

v) Earth bus of 50x6 GI flat with zinc plated bolts and nuts shall be provided in the bottom of the panel.

w) The street light feeder pillar shall be provided with individual labels with equipment designation/rating. Also the boards shall be provided on the front with a label engraved with the designation of the street light feeder pillar. Labels shall be made of non-rusting metal or 3 ply lamicoid or engraved PVC.

x) Internal wiring of the panel shall be done using flexible copper cables of appropriate sizes. All the wires shall be numbered and ferrules shall be provided for easy identification.

y) Proper clip-on stud type terminals of appropriate rating shall be provided for termination of incoming as well as outgoing cable inside the street light feeder pillar.

z) Each street light feeder pillar shall have appropriate antenna, GSM modem, feeder interface unit and major switchgears with potential free terminals for communication with feeder interface unit. Any unauthorised opening of feeder pillar shall be automatically reported to central control central on real time basis.

aa) Inside the door of lighting panels a single line circuit diagram/description shall be fixed for ready reference.

bb) As required all sheet steel enclosures of panels will be chemically cleaned rinsed, phosphate & dried. After the treatment steel surfaces will be given two coats of primer & finished grey enamel paint or powder coating of shade 631 of IS-5. Coating thickness shall be minimum 50 microns.

cc) Street light feeder pillar should be mounted on angle iron ISA50x50x6 (NS) 90 cm long legs out of which 45cm duly grouted in cement concrete 1:2:4(1 cement 2 sand 4 stone aggregate).

dd) Feeder pillar of suitable size not less than 30cm and up to 45cm deep made out of M.S. sheet

2mm. Thick powder coaled duly compartmentalized having 4 strip bus bar of 2300 amp. Capacity double door with locking arrangement for protection from rain, dust. Feeder pillar duly fixed on MS angle iron frame work of size 50mm x50mm x6mm (NS) 90 cm long legs out of which 45 cm duly grouted in cement concrete 1:2:4 (1 cement 2 sand 4 stone aggregate 20mm)with the following equipment mounted inside the panel under :-

Incomer MCCB 100 Amp.16 KA 4 pole with thermal magnetic release	1
Outgoing MCCB 25 Amp.16KA 4 pole with thermal magnetic release (Stabilized Output voltage)	5
Power Contractor 95 Amp.3 pole	1
Voltmeter 0-500 volts 96 sq.mm flush type with selector switch.	1
Ammeter 0-100 volts 96 sq.mm flush type with selector switch.	1
LED indication lamps (RYB) with HRC control fuse with fuse fitting	3
Astro timer Rex modular D -21 model (legrand or equivalent)	1
H Push Button	4
Danger Plate	1
Intelligent Feeder Pillar inter face should be capable of two way communication with the SCADA control room of the BDA and should have battery for 48 hours power back up, relay for switching the contactor mounted in the feeder pillar, modem, MCB for isolation and protection of feeder interface unit, wiring, Auto/Manual by pass switch and fixing arrangement as required to be installed inside the above Feeder Pillar complete specification mention above.	1

ee) Suitable 3 Phase RYBN 415 V AC isolation transformer for control circuit stable feed
ff) Door sensor. Also, provide lock & key facility.,
gg) High quality ISI/BIS, FR Cables to be used
hh) Double lugging to be avoided for potential fire hazard.,
ii) Minimum Dimensions of Panel: 1100 x 650 x 550 mm & stand height dimensions: 700 mm
jj) Panel must have clear 20% spare space for future up gradation
kk) Automatic door sensor-based light (with protection MCB) for viewing/maintenance
ll) Thermostat & Space heater (with protection MCB) for cold weather conditions with automatic on/off
controller.,
mm) Panel mount outdoor antenna for GSM, GPS.,
nn) Canopy design for draining down water

CCMS SMART SOFTWARE must be configured for

i) Energy monitoring & auditing for streetlight infrastructure.,
ii) Fault detection & alerts
iii) CCMS Web dashboard with secure password & OTP login.,
iv) Customizable CCMS Software
v) WhatsApp integration, SMS & Email Alerts
vi) Hierarchy-wise reporting & alerts.,
vii) GIS mapping of live connected streetlight control panels & streetlights
viii) Smartphone app with local configuration & navigation.,
ix) Monitoring & reporting of lighting parameters.,

x) Work permits, media attachments for site photos etc. per Feeder Panel for remote verification
xi) Asset management module for streetlight infrastructure data & GIS mapping.,
xii) Complaint/service management with history & escalation must be available.
xiii) Includes 5 years of data hosting, communication, & cloud services with CCMS Web Dashboard
xiv) User-adjustable dimming intensity
xv) Programmable dimming schedules daily, monthly, yearly, special events, astro-clock for sunset/sunrise time with monthly offset.,
xiv) Lamp burn hours are monitored via CCMS Software.,

CCMS should ensure :

i) Mesh Network Should Be Synchronized with other zones streetlight mesh networks via roaming trigger
ii) Utility data reconciliation & Class 1 accuracy reports for billing

Note:

In the work indent item specifications there is a Gateway/ DCU with all required accessories including UPS power Supply, that is included in the intelligent feeder Pillar housing to ensure that the mesh network is always up and running. This gateway needs to be placed after appropriate network planning and placement so as to cover 100% controllers and Motion sensors. The ideal position of the gateway must be positioned in the centre of the circuits and must be provided a UPS power supply to give live status of the controllers and the motion sensor with proper housing and required accessories. This helps to achieve 100% uptime of the controllers and Motion sensors and ensure proper functionality of the system without causing additional cost on his own .

SECTION 6: CONTRACT DATA

Items marked "N/A" do not apply in this Contract. The following documents are also part of the Contract:

- The Schedule of Operating and Maintenance Manuals (Clause - 48)
- The Methodology and Program of Construction (Clause - 25)
- Site Investigation Reports (Clause - 14)

Tender Inviting Authority:

Name & Address : The Executive Engineer (Ele), Electrical Division
T. Chowdaiah Road, Kumar Park west,
Bengaluru-560020

Name of authorized Representative : The Executive Engineer (Ele), Electrical Division
T. Chowdaiah Road, Kumar Park west,
Bengaluru-560020

The name and identification number of the Contract:

Tender Enquiry No : **Indent No - BDA/2025-26/EL/WORK_INDENT129**

The Works consist of : Providing LED Street Lights with Centralized Control and Monitoring System (CCMS) for sector 1 to 9 at Dr K Shivarama Karanata Layout, BDA, Bengaluru
.

Detailed Scope of work is as follows:

The smart street light system for Individual Street light and Group Street light controlling & monitoring. The complete system configuration and control will be achieved remotely through wireless communication. The system enabled with 4G to communicate between switching point controller & Server/Cloud and RF communication (ZigBee RF 2.4 GHz Mesh Topology) / Sub GHz (863 to 869 MHz) between Switching point controller &Street light Control Unit of each street light. Each individual street light communicating to each other over RF communication and forming the strong mesh and all electrical parameters as required transferring to central IOT Gateway over RF Communication. The RF mesh forming in such a way to avoid communication breakage between nodes to nodes hence chance of data losses minimized in this technology as well due to higher data rate, it can be integrated multiple sensors such as Pollution sensor, light sensor, noise sensor and many more in future, with existing control system. The IOT Gateway transfers all data's over the cloud with GPRS communication to user and the user having multiple accesses over each individual parameter inside the software.

All street light should be mapped with Google map with their Geo-coordinates and access its real time status. The basic components are smart street lighting solutions are as : LED Street Light with inbuilt RF Controller , IOT Gateway , GCMS/CCMS & Cloud based Software

Further in the work indent item specifications there is a Gateway/ DCU with all required accessories including UPS power Supply, that is included in the intelligent feeder Pillar housing to ensure that the mesh network is always up and running. This gateway needs to be placed after appropriate network planning and placement so as to cover 100% controllers and Motion sensors. The ideal position of the gateway must be positioned in the centre of the circuits and must be provided a UPS power supply to give live status of the controllers and the motion sensor with proper housing and required accessories. This helps to achieve 100% uptime of the controllers and Motion sensors and ensure proper functionality of the system without causing additional cost on his own .

Start Date:

The start date shall be the date of issue of Letter of Award of the Contract. (Clause No: 1.1 of Conditions of Contract)

Intended Completion Date:

The Intended Completion Date for the whole of the Works is **8 Months** with the following milestones/ Stages. (Clause No: 17 & 26 of Conditions of Contract)

2) **Milestone/Stages:**

Physical works to be completed	Period from the date of issue of Letter of Intent to Award the Contract	Activity
Stage 1	1Months (t0)	Approval of Design, Drawings & GTPs
Stage 2	1 Months (t1= t0+1)	Approval of Vendors for all equipments & Fixtures
Stage 3	6Months (t2= t1+6)	Supply and fixing of Street light Fixtures along with automation Equipments with trail and running in complete.
Stage 4	60Months	Operation & Maintenance Period from the Date of commissioning.

3) **Site Possession Date:**

The Site Possession Date is from the date of issue of Letter of Award of the Contract.

4) **Site Location:**

The Site is located at: **Dr K Shivaramakaranata Layaout sector 1 to 9**

5) **Insurance requirement are as under:**

Sln	Type of Cover	Minimum Cover for Insurance
i	Works and of Plant and materials	The sum stated in the Agreement
ii	Loss or damage to equipment	Full replacement cost
iii	Loss or damage to property of Third Party	Full replacement cost
iV	Personal injury or death insurance (a) for Third Party37	
	(b) for Contractor's employees or labour	In accordance with the statutory requirements applicable to Karnataka

6) **Price Adjustment** :

Deleted

7) **Advance Payment:**

The amounts of the advance payment are: [42 of

CC]

Nature of Advance	Amount (Rs.)	Conditions to be fulfilled
1. Mobilization	5% of the Contract price	On submission of un-conditional Bank Guarantee. (to be drawn before end of 20% of Contract period)

(The advance payment will be paid to the Contractor no later than 30 days after fulfillment of the above conditions).

Repayment of advance payment for mobilization :
[42 of CC]

The advance loan shall be repaid with percentage deductions from the interim payments certified by the Engineer under the Contract. Deductions shall commence in the next Interim Payment Certificate following that in which the total of all such payments to the Contractor has reached not less than 15 percent of the Contract from the date of payment of first installment of advance, whichever period concludes earlier, and shall be made at the rate of 7.5% percent of the amounts of all Interim Payment Certificates until such time as the loan has been repaid, always provided that the loan shall be completely repaid prior to the expiry of the original time for completion pursuant to Clauses 17 and 26.

8) Taxes and Duties:

Unit Rate/Prices are inclusive of all other applicable Taxes but excluding GST ; The Quoted rates of the contractor shall be the Unit Rates inclusive of all Taxes but excluding GST.

Note: The Unit rate of the items provided in the e-portal are exclusive of GST

All duties, taxes, and other levies payable by the contractor under the contract, or for any other cause, shall be included in the rates, prices and total Tender Price submitted by the Tenderer. (Excluding GST)

The date by which “as-built” drawings in 5 sets are required is within 30 days of issue of certificate of completion of Whole or Section of the Work as the case may be. [Clause – 48 of CC].

The amount to be withheld for failing to supply “as built” drawings or supply of Operation and Maintenance Manuals by the date required is Ten Percent (10%) of the Ex-works price as in clause no 8 of SCC.

The following event shall also be fundamental breach of the contract (Clause No: 49.2 of CC):

The contractor has contravened Sub-clause Clause 7.1 and 9 of CC.
The percentage to apply to the value of the work not completed representing the Employer's (Clause No: 50.1 of CC), additional cost for completing the Works shall be as per Clause No: 49.7 & 49.9 of CC. (Clause 50.1 of CC).

SECTION 7:
SPECIFICATIONS

Refer Uploaded Technical Specifications

SECTION 8
DRAWINGS
Refer uploaded Drawings

SECTION 9: BILL OF QUANTITIES

SECTION 10

Format Of Bank Guarantee For EMD & Security Deposit

Refer Section-4 – ANNEXURES